

IPL T PC1 IPL T PC1i

IP Link Power Control Interfaces



Extron® Electronics
INTERFACING, SWITCHING AND CONTROL

Safety Instructions • English



This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.



This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

Caution

Read Instructions • Read and understand all safety and operating instructions before using the equipment.

Retain Instructions • The safety instructions should be kept for future reference.

Follow Warnings • Follow all warnings and instructions marked on the equipment or in the user information.

Avoid Attachments • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

Consignes de Sécurité • Français



Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).



Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

Attention

Lire les instructions • Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

Conserver les instructions • Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

Respecter les avertissements • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.

Éviter les pièces de fixation • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

Sicherheitsanleitungen • Deutsch



Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.



Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

Achtung

Lesen der Anleitungen • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits- und Bedienungsanleitungen genau durchlesen und verstehen.

Aufbewahren der Anleitungen • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

Befolgen der Warnhinweise • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

Keine Zusatzgeräte • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

Instrucciones de seguridad • Español



Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.



Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

Precaución

Leer las instrucciones • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

Conservar las instrucciones • Conservar las instrucciones de seguridad para futura consulta.

Obedecer las advertencias • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

Evitar el uso de accesorios • No usar herramientas o accesorios que no sean específicamente recomendados por el fabricante, ya que podrían implicar riesgos.

安全须知 • 中文



这个符号提示用户该设备用户手册中有重要的操作和维护说明。



这个符号警告用户该设备机壳内有暴露的危险电压，有触电危险。

注意

阅读说明书 • 用户使用该设备前必须阅读并理解所有安全和使用说明。

保存说明书 • 用户应保存安全说明书以备将来使用。

遵守警告 • 用户应遵守产品和用户指南上的所有安全和操作说明。

避免追加 • 不要使用该厂商没有推荐的工具或追加设备，以避免危险。

Warning

Power sources • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

Power disconnection • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

Power cord protection • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

Servicing • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

Slots and openings • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

Lithium battery • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer instructions.

Avertissement

Alimentations • Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de la contourner ni de la désactiver.

Déconnexion de l'alimentation • Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

Protection du cordon d'alimentation • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

Réparation-maintenance • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

Fentes et orifices • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

Lithium Batterie • Il y a danger d'explosion s'il y a un remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandée par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

Vorsicht

Stromquellen • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden.

Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

Stromunterbrechung • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stromversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

Schutz des Netzkabels • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegengestellt werden können.

Wartung • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

Schlitze und Öffnungen • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

Lithium-Batterie • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

Advertencia

Alimentación eléctrica • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearla ni eliminarla.

Desconexión de alimentación eléctrica • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

Protección del cables de alimentación • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

Reparaciones/mantenimiento • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

Ranuras y aberturas • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalentamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

Batería de litio • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterías usadas siguiendo las instrucciones del fabricante.

警告

电源 • 该设备只能使用产品上标明的电源。设备必须使用有地线的供电系统供电。第三线（地线）是安全设施，不能不用或跳过。

拔掉电源 • 为安全地从设备拔掉电源，请拔掉所有设备后或桌面电源的电源线，或任何接到市电系统的电源线。

电源线保护 • 妥善布线，避免被踩踏，或重物挤压。

维护 • 所有维修必须由认证的维修人员进行。设备内部没有用户可以更换的零件。为避免出现触电危险不要自己试图打开设备盖子维修该设备。

通风孔 • 有些设备机壳上有通风槽或孔，它们是用来防止机内敏感元件过热。不要用任何东西挡住通风孔。

锂电池 • 不正确的更换电池会有爆炸的危险。必须使用与厂家推荐的相同或相近型号的电池。按照生产厂家的建议处理废弃电池。

FCC Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

The Class A limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

NOTE: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance with FCC emissions limits.

For more information on safety guidelines, regulatory compliances, EMI/EMF compliance, accessibility, and related topics, [click here](#).

Conventions Used in this Guide

Notifications

In this user guide, the following are used:

WARNING: A warning warns of things or actions that might cause injury, death, or other severe consequences.

CAUTION: A caution indicates a potential hazard to equipment or data.

NOTE: A note draws attention to important information.

TIP: A tip provides a suggestion to make working with the application easier.

Software Commands

Commands are written in the fonts shown here:

```
^ARMerge Scene, ,Op1 scene 1,1 ^B 51 ^W^C  
[01] R0004 00300 00400 00800 00600 [02] 35 [17] [03]  
[Esc]X1 *X17* X20* X23* X21]CE ←
```

NOTE: For commands and examples of computer or device responses mentioned in this guide, the character “0” is used for the number zero and “o” represents the capital letter “o.”

Computer responses and directory paths that do not have variables are written in the font shown here:

```
Reply from 008.132.180.48: bytes=32 times=2ms TTL=32  
C:\Program Files\Extron
```

Variables are written in slanted form as shown here:

```
ping xxx.xxx.xxx.xxx -t  
SOH R Data STX Command ETB ETX
```

Selectable items, such as menu names, menu options, buttons, tabs, and field names are written in the font shown here:

```
From the File menu, select New.  
Click the OK button.
```

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Trademarks

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Introduction

This section provides an overview of the Extron IPL T PC1 and IPL T PC1i IP Link® Power Control Interfaces, and describes their features. Topics covered in this section are:

- [About this Guide](#)
- [About the IPL T PC1](#)
- [Features](#)
- [Application Diagram](#)

About this Guide

This guide contains information about the Extron IPL T PC1 and IPL T PC1i, including explanations of how to install, configure, and operate them. Unless otherwise specified, “IPL T PC1” and “PC1” refer to both product versions throughout this guide.

About the IPL T PC1

The IPL T PC1 and IPL T PC1i are Ethernet-based power management devices that can control and schedule AC power on and off. Monitoring of various device conditions is also available with Global Configurator® (GC 3.3) software. The IPL T PC1i is an international version, configured for 220 VAC with an IEC connector.

The PC1 and PC1i ports include a LAN port, a bidirectional RS-232 port, an IR output port, and a contact closure input port. These ports provide integration of power control, serial device control, IR device control, and input sensing in a single device that can be mounted on a rack or behind a display device or kiosk.

The PC1 can be a stand-alone control device or as one of many nodes in a distributed control system environment.

Features

- **Remote powering a device on and off** — Centralized management features such as Telnet allow remote powering on and off of a plasma display, camera, video conferencing equipment, switcher, or other audio/video device. The Power button on the front panel lets you turn power on and off to the connected device, while an LED to the lower-right of the Power button lights green to indicate that the device is receiving power.
- **RS-232 control** — The bidirectional serial port on the rear panel, along with an Extron serial driver, enables RS-232 control of an output device.
- **IR control** — An IR port on the rear panel enables unidirectional device control via an IR emitter, supported by Extron IR drivers.
- **Contact closure input port** — This port can detect a closed circuit between an input and ground, and trigger an event that has been set up in GC 3.3 (for example, set off an alarm, turn on a light, or notify you by e-mail that an event has occurred).

- **Industry standard Ethernet protocols** — The PC1 uses standard Ethernet and TCP/IP communication protocols, including ARP (Address Resolution Protocol), DHCP (dynamic host configuration protocol), TCP/IP (Transmission Control Protocol/Internet Protocol), Telnet, and HTTP (HyperText Transfer Protocol).
- **Integral high-performance web server** — The PC1 has a built-in web server with memory available for storing device drivers, GlobalViewer®, and custom user web pages.
- **Configuration utility** — Global Configurator software, a free, easy to use Windows®-based configuration utility, makes product setup simple and intuitive; no programming knowledge is required.
- **E-mail capabilities to enable support** — With e-mail notification, technical support administrators can receive failure and service messages through an e-mail-enabled cell phone, PDA, pager, or Internet e-mail account.
- **Web-based A/V asset management** — When used with GlobalViewer software, the PC1 provides a powerful, flexible way to manage, monitor, and control a projector, flat panel display, and so on, using a standard Ethernet network.
- **Scheduling of power and executive mode** — Power to an output device can be scheduled using the web pages, Simple Instruction Set (SIS™) commands, or Global Configurator. Front panel lockout (executive mode) can also be scheduled by these methods.
- **Easy configuration and control** — You can easily control the PC1 using:
 - The Internet Explorer browser (V5.5 or later)
 - A web-based interface
 - DataViewer (or a standard Telnet client application)
- **Extensive library of device drivers** — Device drivers allow Extron products to control various display and source devices, such as projectors, flat-panel displays, and DVD players. Extron has produced thousands of fully tested and uniformly modeled RS-232 and IR device drivers.
- **Direct port access** — Use existing software programs to control a device that has no Ethernet support. Any existing Extron product with a serial control port can be interfaced with a LAN.
- **Built-in multi-level security** — You can control access to devices attached to the interface. Two levels of password protection provide appropriate security.
- **Simultaneous multi-user support** — Each PC1 interface supports multiple concurrent users, improving system throughput.
- **Multiple mounting options** — The PC1 can be placed on a tabletop, for which four feet are provided and can be attached. Optional hardware for mounting the unit under a desktop or podium or on a rack shelf is not included, but may be ordered separately.

Application Diagram

The following application diagram shows an example of how devices can be connected to the IPL T PC1 or the IPL T PC1i.

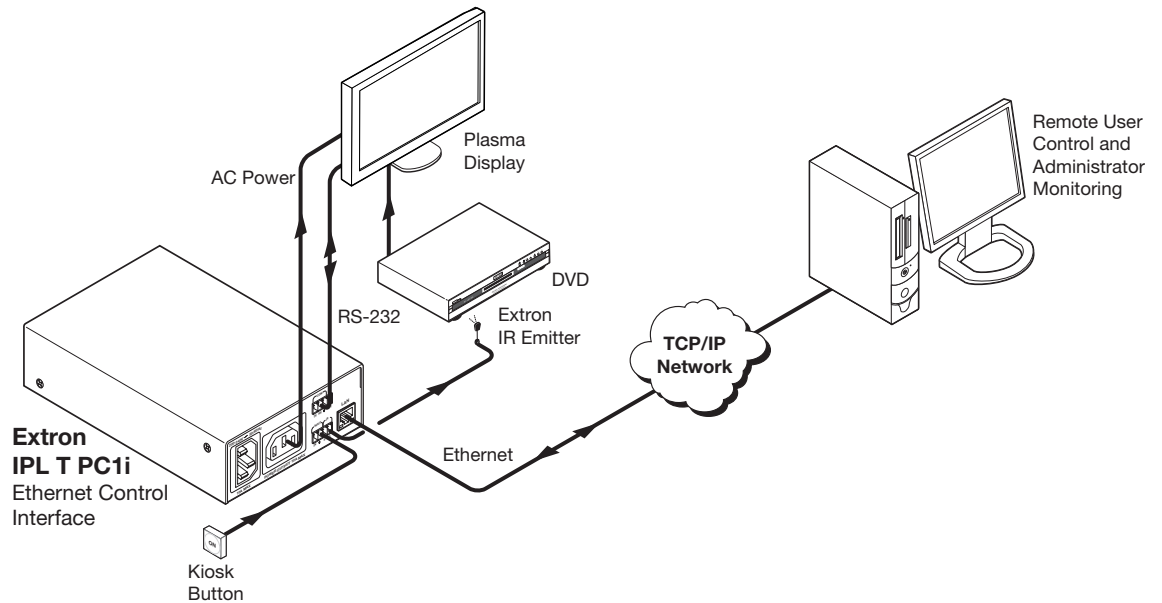


Figure 1. Connection Diagram for an IPL T PC1

Installation and Rear Panel

This section describes:

- [Installation Overview](#)
- [Rear Panels](#)
- [Connecting Cables](#)

Installation Overview

To install and set up an IPL T PC1 interface:

1. Disconnect power from the PC1 interface and the output device (plasma display, VCR, projector, and so forth).
2. If desired, mount the PC1 interface (see "[Mounting the IPL T PC1 Interface](#)").
3. Plug the PC1 power cord into an AC wall outlet.
4. Connect a LAN Ethernet cable from your computer to the RJ-45 port on the PC1 rear panel to establish a link to the network (see "[Wiring the Local Area Network \[LAN\] Port](#)").
5. Set up an IP address for the PC1 (see "[HTML Configuration and Control](#)" or "[SIS Programming and Control](#)").
6. Plug an output device into the output power receptacle on the PC1 rear panel.
7. If desired, connect the output device to the serial COM port.
8. If desired, connect a contact closure device to the Input port.
9. If desired, connect an IR emitter to the IR port.
10. Press the front panel button to power on the receptacle.
11. Power on the output device.
12. Configure the PC1 interface using Global Configurator (provided on the included software DVD) or the embedded web pages.

Rear Panels

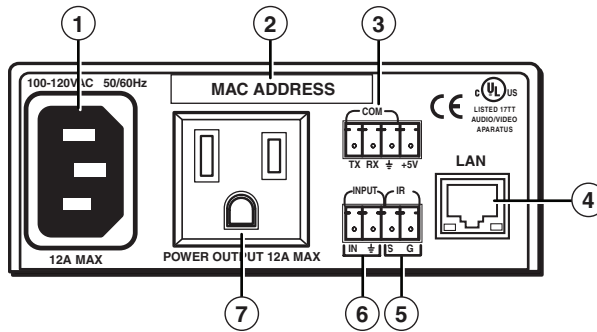


Figure 2. IPL T PC1 Rear Panel (120 VAC)

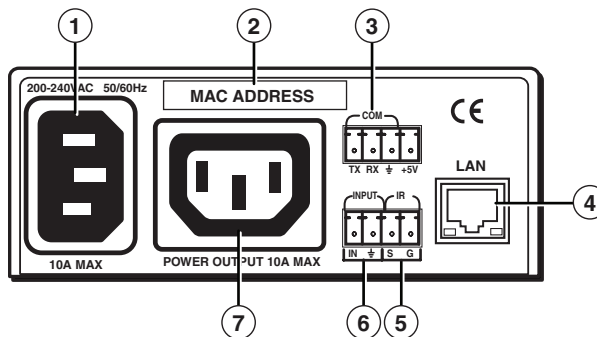
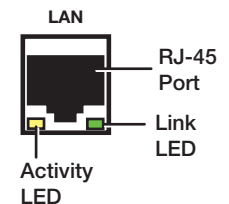


Figure 3. IPL T PC1i Rear Panel (220 VAC)

- ① **Power connector** — Connect a power cord from a wall outlet to this male IEC power receptacle.
- ② **UID label** — Contains the unique User ID number (MAC address) of the unit (for example, 00-05-A6-00-00-01).
- ③ **COM port (RS-232)** — Connect the output device serial port to this captive screw connector to enable bidirectional RS-232 device control. This serial port contains the following four pins, in order from left to right on the rear panel: transmission (Tx), receiving (Rx), ground (\equiv), and +5 V (to tie hand-shaking lines on the controlled device if needed).
- ④ **LAN connector and LEDs** — An Ethernet connection can be used on an ongoing basis to monitor and control the PC1 and the device connected to it (see [“Wiring the Local Area Network \(LAN\) Port”](#) for instructions on connecting the host to this port).
 - **RJ-45 port** — Plug a patch cable into this RJ-45 female socket, and connect the other end to a network switch, hub, router, or computer.
 - **Link LED** — This green LED lights to indicate a good network connection.
 - **Activity LED** — This yellow LED blinks to indicate network activity.



- ⑤ **IR port** — Connect an IR emitter to pins 3 (S, for signal) and 4 (G, for ground) of this shared captive screw connector to enable infrared remote control of the output device (see “[Wiring for IR Control](#)” for instructions on connecting an IR emitter to this port).

The PC1 provides enough current to power one IR emitter up to 4000 feet, or a maximum of four emitters in parallel up to 100 feet each. To enable IR control, load an Extron IR driver to the PC1 for the output device, using Global Configurator, the PC1 web pages, or IR Learning.

- ⑥ **Input contact closure port** — Connect a contact closure device to pins 1 (IN, for input) and 2 (\perp , for ground) of this shared captive screw connector to enable the PC1 to detect a closed circuit between an input and ground and to trigger an event (see “[Wiring the Contact Input Port](#)”).

For example, if a button were pressed or motion were detected by a sensor, the input would short to ground, which would cause an event such as a bell ringing, a light turning on, or an e-mail notification that an event has occurred.

- ⑦ **Output power receptacle** — Connect the power cord from an output device to this female 3-prong Edison (IPL T PC1) or IEC (IPL T PC1i) power output receptacle.

Connecting Cables

Connect cables to the rear panel connectors as outlined below.

1. Plug an IEC power cord into a wall outlet and into the 3-prong male power connector on the PC1 rear panel. The green Power LED lights and remain lit.
2. Plug the Ethernet cable from the network into the LAN port on the rear panel. The green Link LED on the connector lights.
3. Plug the power cord of the output device to be controlled into the output receptacle on the PCI rear panel.
4. If desired, connect the output device to the RS-232 COM port.
5. If desired, connect an IR emitter to the IR port to control an output device.
6. If desired, connect a contact switch to the contact input port.

The following sections provide details on wiring the appropriate cables to the rear panel connectors.

RS-232 Port Cabling

To connect an output device, such as a plasma display or projector, to the PC1 RS-232 connector, see the “Extron IP Link Device Interface Communication Sheet” for your display device. This sheet contains information about your device, including connector pin assignments and connection diagrams, and is available from the Extron website.

Accessing the Communication Sheet

To obtain the Communication Sheet for your output device:

1. On the Extron website (www.extron.com), click the **Download** tab.
2. On the Download Center page, click the **Device Drivers** button (shown at right).
3. At the bottom of the Device Drivers page, select IPL T PC1 from the drop-down menu.
4. On the next web page, select **Serial** from the Protocol Type drop-down menu to display a list of the Extron serial drivers.



- On the drivers list, locate the model name of your output device. In the row for your device, click on the **nnKb** link in the **Communication Sheet** column.
In figure 4, below, the Communication sheet link for a 3M-7340 display has been selected.

Model Number	Product Category	Interface	Version	Date Posted	Driver	Communication Sheet	Driver Status
3M - 7300 Also compatible with : 7340, 8000PD, 8000VC, 8100CB, 8200IC, 8200IW Click here for complete list	Display	Serial	2	Jul 20, 2005	33 KB	27 KB	Beta
3M - 7340 Also compatible with : 7300, 8000PD, 8000VC, 8100CB, 8200IC, 8200IW Click here for complete list	Display	Serial	2	Jul 20, 2005	33 KB	27 KB	Beta
3M - 8000PD Also compatible with : 7300, 7340, 8000VC, 8100CB, 8200IC, 8200IW Click here for complete list	Display	Serial	2	Jul 20, 2005	33 KB	27 KB	Beta
3M - 8000VC	Display	Serial	2	Jul 20, 2005	33 KB	27 KB	Beta

Figure 4. Communication Sheet Access

- The communication sheet (a PDF file) opens. You can view, print, or download it.
- Wire your display device as described in its communication sheet.

You can also access the Communication Sheets via the Global Configurator software (see the *IPL T PC1 Setup Guide* for information on using GC3.2).

Connecting the Display Device

To connect the display device to the PC1:

- Wire an RS-232 cable to the provided 4-pole captive screw connector, as described below. Use only the first three pins of the connector, starting from the left.
 - Connect the wire from the Receive port of the display to the first pin (on the left) of the connector, which plugs into the PC1 Tx (Transmit) port.
 - Connect the wire from the Transmit port of the display to the second pin of the connector, which plugs into the PC1 Rx (Receive) port.
 - Connect the ground wire from the display to the third pin of the connector, which plugs into the PC1 ground (\perp) port.

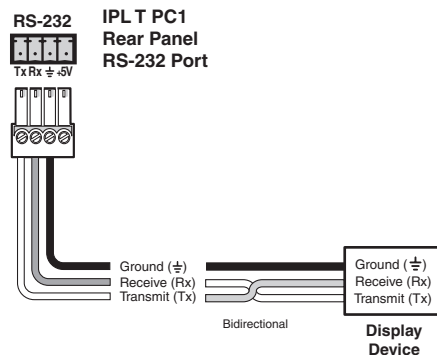


Figure 5. Connecting an Output Device to the RS-232 Port

- Plug the cable into the RS-232 receptacle on the PC1 rear panel.

NOTE: The RS-232 port is by default a control port. If you want to use it to configure the PC1, you must perform a mode 2 reset (see “**Resetting**” in the “Front Panel Features and Operation” section).

Wiring the Local Area Network (LAN) Port

Wire the connector as shown in the tables below.

- For 10Base-T (10 Mbps) networks, use a Category 3 or better cable.
- For 100Base-T (100 Mbps) networks, use a Category 5 cable.
- Use a straight-through cable to connect to a switch, hub, or router.
- Use a crossover cable to connect directly to a computer.

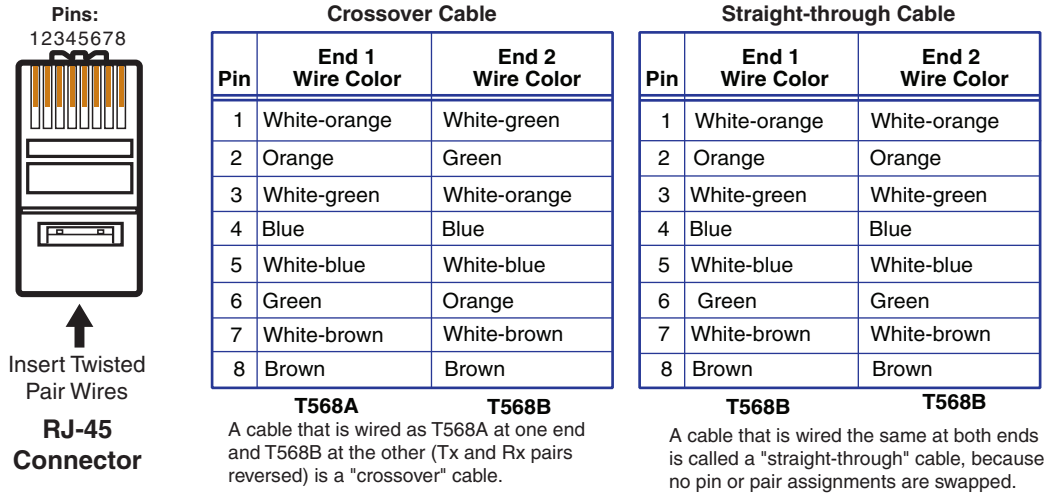


Figure 6. RJ-45 Connector Wiring

Wiring for IR Control

If you intend to control the display device via infrared (IR) commands from the PC1, wire an Extron IR emitter to a 3.5 mm, 2-pole captive screw connector (provided), and plug the 2-pole connector into the IR Signal and Ground pins (pins 3 and 4) of the shared captive screw connector on the rear panel.

Alternatively, you can wire the IR emitter to pins 3 and 4 of the provided 4-pole captive screw plug (and, if desired, also wire a contact closure device to pins 1 and 2 of the same 4-pole connector; see "[Wiring the Contact Input Port](#)" on the next page). Plug the wired 4-pole connector into the rear panel Input/IR connector.

The PC1 provides enough current to power one IR Emitter up to 4000 feet, or up to four emitters for 100 feet each (see figure 7, below).

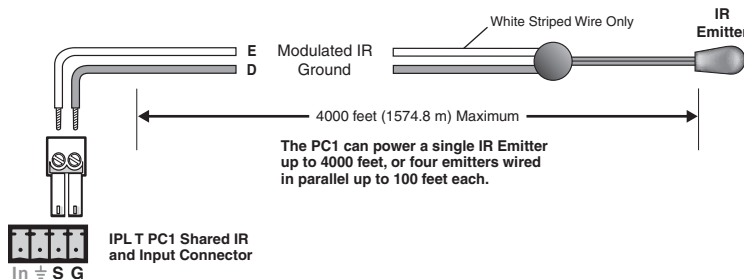


Figure 7. Wiring for IR Control via an IR Emitter

NOTE: Place the head of the IR emitter over or directly adjacent to the IR receiver of the controlled device.

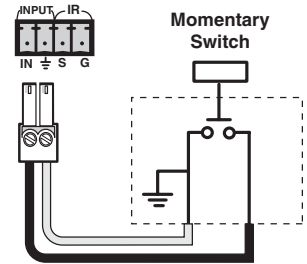
Wiring the Contact Input Port

The IPL T PC1 contact closure Input port can be connected to any device providing a closure to ground (closed = logic 1 and open = logic 0). The contact input is connected to 5 VDC via a 1k ohm pull-up resistor and must be wired with a ground. This allows the input to be tied to a device such as a motion detector, alarm, photo eye, and so forth. You can define what this input will trigger via GC3.3.

1. Connect one end of the input cable to a 3.5 mm, 2-pole captive screw connector (provided), and plug the connector into the two Input pins (In and \oplus) of the shared Input/IR port connector on the rear panel.

Alternatively, you can wire the contact closure device to pins 1 and 2 (from the left) of the provided 4-pole captive screw plug (and, if desired, also wire an IR emitter to pins 3 and 4 of the same 4-pole connector; see ["Wiring for IR Control"](#) on the previous page). Plug the wired 4-pole connector into the rear panel Input/IR connector.

2. Connect the other end of the input cable to the contact input device that will provide a triggering signal (see the diagram at right).



Front Panel Features and Operation

This section contains a description of the IPL T PC1 and IPL T PC1i front panel features and instructions for setting up the PC1 using the front panel. The following topics are discussed:

- [Front Panel Features](#)
- [Setting Up the System Using the Front Panel](#)
- [Resetting](#)

Front Panel Features

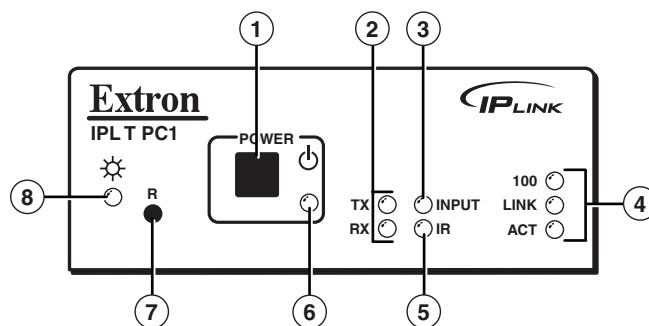


Figure 8. IPL T PC1 and IPL T PC1i Front Panel

- ① **Power button** — Press this button to switch power on and off to the output receptacle on the rear panel.
- ② **Tx and Rx LEDs** — The Tx (transmit) LED lights when RS-232 data is being transmitted. The Rx LED lights when RS-232 data is being received.
- ③ **Input LED** — This green LED lights when the Input contact closure port is activated (shorted).
- ④ **LAN status LEDs** — These three LEDs show the status of the Ethernet connection as follows:
 - **100** — When lit, indicates a 100 Mbps connection speed. Otherwise, the connection speed is 10 Mbps.
 - **Link** — Lights steadily while the interface has an active network connection.
 - **Act (Activity)** — Blinks while data is being sent or received.
- ⑤ **IR LED** — This green LED lights when IR data is being transmitted.
- ⑥ **Receptacle power LED** — This red LED lights while power is being supplied to the rear panel receptacle and, therefore, to the attached output device.

- ⑦ **Reset button (recessed)** — Use the tip of a small Phillips screwdriver or an Extron Tweaker (provided) to press this recessed button to reset the unit in one of five reset modes (see “[Resetting](#),” later in this section, for details on reset modes and on using this Reset button).
- ⑧ **Power LED** — This green LED lights while the PC1 or PC1i interface is receiving power and is running.

When the unit is being reset from the front panel, this LED blinks the appropriate number of times to indicate the reset mode the PC1 has entered (see “[Resetting](#)”).

Setting Up the System Using the Front Panel

The following system setup procedures can be performed using the front panel, Global Configurator, the embedded web pages, or SIS commands.

This section discusses the front panel procedures. For information on using the web to set up, see “[HTML Configuration and Control](#).” For the equivalent SIS commands, see “[SIS Programming and Control](#).” For information on setting up using Global Configurator, see the *IPL T PC1 Setup Guide*.

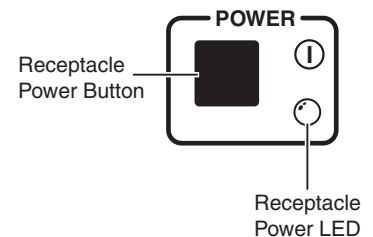
NOTE: The PC1 takes approximately 2 minutes to store settings made via the front panel, SIS commands, or the web pages into its memory. If you disconnect power from the PC1 less than 2 minutes after entering a setting, your entry may be lost.

Setting Up Power Control of the Output Device

To set up power control of the output device plugged into the PC1 output power receptacle:

1. On the PC1 front panel, press and release the receptacle Power button.

The green receptacle Power LED at the right of the button lights and remains lit while the receptacle is powered on. It turns off when the receptacle is powered off.



2. Power on the device, using its own power switch.

If power is removed from the PC1, the power state of the output receptacle is preserved in flash memory; for example, if the receptacle was powered on when the PC1 was disconnected, it is powered on when the PC1 receives power again. This enables the receptacle configuration to be easily restored if a power loss occurs.

CAUTION: Some devices, such as projectors, need a cool-down period to power off safely. Use RS-232 or IR commands to power these devices.

Front Panel Security Lockout (Executive Mode)

When the PC1 is in front panel lock mode (executive mode), it does not accept commands from the front panel. If any button is pressed while the unit is in executive mode, the Power LED flashes three times, indicating that the input from the front panel is not being accepted.

To enter or exit executive mode, press and hold the receptacle Power button for 3 seconds. The Power LED flashes three times to indicate that the executive mode has been switched.

- NOTES:**
- If power to the PC1 is recycled while the unit is in executive mode, the PC1 remains in executive mode.
 - The Reset button is always functional. It is recessed to avoid it being pressed accidentally.

Resetting

Reset the unit by pressing the Reset button on the front panel. This button is recessed, and can be accessed with an Extron Tweezer or other small Phillips screwdriver.

- CAUTIONS:**
- Review the reset modes carefully. Use of the wrong reset mode may cause unintended loss of flash memory programming or a unit reboot.
 - The reset modes described on the following pages break all TCP/IP connections by closing all sockets to the unit.

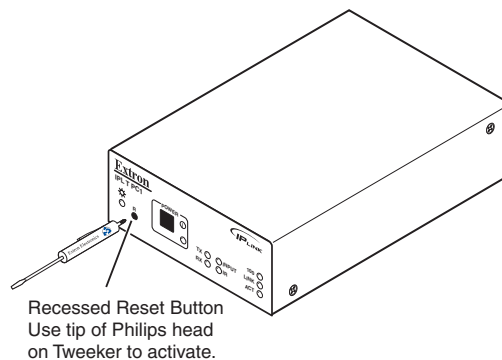


Figure 9. Reset Button

- NOTES:**
- If the Reset button is continually held in, the Power LED pulses (blinks) every 3 seconds, and with each pulse, the PC1 goes into a different reset mode. For mode 5, the LED blinks three times, indicating that it is the last mode.
 - The reset modes are separate functions, not a progression from mode 1 to mode 5.

Mode 1

Activation	Hold in the Reset button while applying power to the unit.
Result	Returns the unit to the default base firmware that was shipped with the PC1 from the factory. Event scripting does not start when the unit is powered on in this mode.
Purpose and notes	Use mode 1 to remove a version of firmware if incompatibility issues arise. All user files and settings are maintained. User web pages may not work correctly if you are using an earlier firmware version.

NOTE: After a mode 1 reset, the factory-installed firmware version remains in effect only until the unit is powered off. After a power cycle, the PC1 returns to the firmware that was installed prior to the mode 1 reset.

Mode 2

Activation	<p>To enter mode 2, you use both the PC1 front panel and your computer, as follows:</p> <ol style="list-style-type: none">1. On the computer, open a command interface, such as Extron DataViewer or HyperTerminal.2. Immediately press the Reset button momentarily (for less than 1 second). <p>NOTE: Nothing happens if the momentary press does not occur within 1 second.</p> <ol style="list-style-type: none">3. Within 2 seconds of the momentary press, press the <+> key on the computer keyboard three times.
Result	<p>The RS-232 port is converted to a host port, which allows the use of SIS commands and host responses.</p> <p>No LEDs blink to indicate the mode switch. If the switch to mode 2 is successful and serial port communication is enabled, the interface screen displays one of the following copyright messages:</p> <ul style="list-style-type: none">• (c) Copyright 2011, Extron Electronics, IPL T PC1, Vn.nn, 60-544-nn• (c) Copyright 2011, Extron Electronics, IPL T PC1i, Vn.nn, 60-544-nn
Purpose and notes	<p>By default, the RS-232 port is a device control port. In mode 2, the serial port is able to receive SIS commands.</p> <p>NOTE: If you do not enter the three plus (+) signs within 2 seconds of the momentary press of the Reset button, the RS-232 port reverts to a device control port.</p>

Mode 3

Activation	Hold the Reset button in until the Power LED blinks once (approximately 3 seconds). Release it, then immediately press it again momentarily (for less than 1 second). NOTE: Nothing happens if the momentary press does not occur within 1 second.
Result	Turns events on or off, depending on their current state. During resetting, the reset LED flashes two times if events are starting and three times if events are stopping.
Purpose and notes	This mode is used for troubleshooting.

Mode 4

Activation	Hold the Reset button in until the Power LED blinks twice (approximately 6 seconds). Release it, then immediately press it again momentarily (for less than 1 second). The Power LED blinks four times in quick succession, confirming a mode 4 reset. NOTE: Nothing happens if the momentary press does not occur within 1 second.
Result:	Reset mode 4 does the following: <ul style="list-style-type: none">• Enables ARP program capability.• Sets the IP address back to factory IP settings.• Sets the subnet mask back to factory default.• Sets the gateway address back to factory default.• Sets port mapping back to factory default.• Turns DHCP off.• Turns events off.
Purpose and notes	Mode 4 enables you to set IP address information using ARP and the MAC address.

Mode 5

Activation:	Hold in the Reset button until the Power LED blinks three times (approximately 9 seconds). Release it, then immediately press it again momentarily (for less than 1 second). The power LED blinks four times in quick succession, confirming a mode 5 reset. NOTE: Nothing happens if the momentary press does not occur within 1 second.
Result:	Performs a complete reset to factory defaults (except for the firmware).
Purpose and notes	Mode 5 is useful if you want to start over with control software configuration and to replace events.

HTML Configuration and Control

This section describes the IPL T PC1 embedded web pages and provides instructions on accessing and using them to configure the PC1. Topics include:

- [Configuring the Hardware for Ethernet Control](#)
- [Using the IPL T PC1 Web Pages](#)
- [Custom Web Pages](#)
- [Troubleshooting](#)
- [Global Configurator Software](#)

The IPL T PC1 must be configured before use in order for it to control other devices. In addition to using the button on the PC1 front panel, you can configure and control the PC1 via any computer attached to a LAN.

- The default PC1 embedded web pages provide a means of setting up, adjusting, and controlling the interface via a web browser from any type of network-enabled computer.
- An alternative way to control and configure the PC1 from your computer is by using Simple Instruction Set (SIS) commands via Telnet. SIS commands are discussed in detail in the "[SIS Programming and Control](#)" section.
- Global Configurator (GC 3.3) software enables you to configure and control the PC1 as well as set up output device monitoring and scheduling (see the *IPL T PC1 Setup Guide*, provided with your PC1, for information on setting up using GC 3.3).

Configuring the Hardware for Ethernet Control

To enable Ethernet control, both the computer and the PC1 must be configured correctly. The PC must be network-capable with the proper protocols, and the PC1 must be set up so it can be connected to a LAN (local area network). Please note that some settings can be configured only via Internet protocol.

For your PC to communicate with the PC1 via Ethernet, it must be equipped with an network interface card and an HTML browser. To allow your PC to work with Extron Ethernet-controlled products, the TCP/IP protocol must be installed and properly configured.

Setting Up and Configuring the PC1 Using ARP

The Address Resolution Protocol (ARP) command provides a quick way to set up an IP address for the PC1, using your PC. The ARP commands tell your computer to associate the PC1 Media Access Control (MAC) address with an IP address that you assign.

1. Obtain a valid IP address for your PC1 from your network administrator.
2. Obtain the PC1 MAC address (UID#) from the small label on the PC1 rear panel (see “**Rear Panels**” in the “Installation and Rear Panels” section). The MAC address should have the following format:
`00-05-A6-nn-nn-nn`
3. If the PC1 has never been configured and is still set for factory defaults, skip to step 4. If not, perform a mode 4 system reset to restore the factory-set values (see “**Resetting**” in the “Front Panel Features and Operations” section for the resetting procedure.)

CAUTION: The PC1 must be configured with the factory default IP address (192.168.254.254) before you execute the ARP command, as described below.

4. On the computer, access the command prompt as follows:
 - a. From your Windows desktop **Start** menu, select **Run...**
 - b. On the Run window, enter `cmd`. The command window opens.
5. At the command prompt enter `arp -s`, followed by the desired new IP address for the PC1, a space, and finally the PC1 MAC address (taken from the small label on the rear panel; see “**Rear Panels**” in the “Installation and Rear Panels” section).

For example:

```
arp -s 10.13.197.57 00-05-A6-01-33-0D
```

A space must separate `arp` and the hyphen [-].

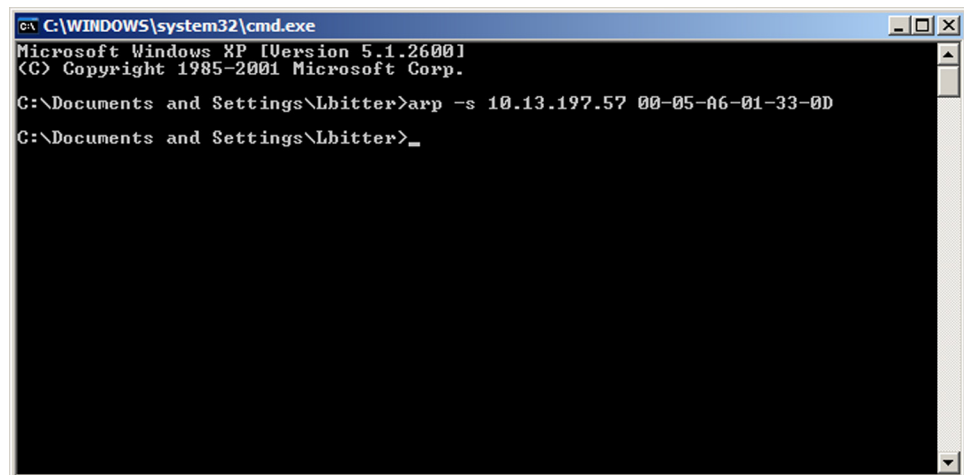


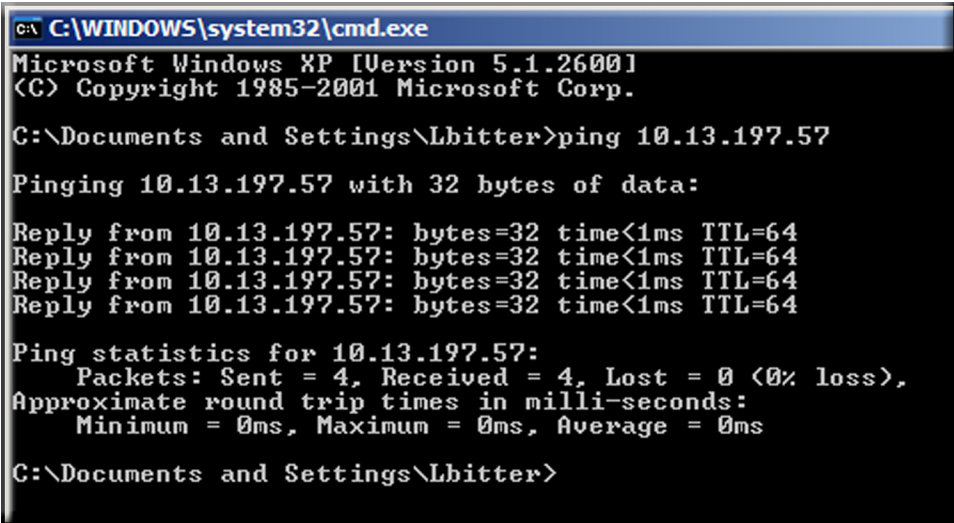
Figure 10. ARP-S Command Screen

6. Execute a ping command by entering `ping`, followed by the new IP address, at the command prompt. For example:

```
ping 10.13.197.57
```

Ping is a utility or diagnostic tool that tests network connections. It is used to determine if the host has an operating connection and is able to exchange information with another host.

The response should be the new IP address of the PC1, as shown below.



```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Lbitter>ping 10.13.197.57

Pinging 10.13.197.57 with 32 bytes of data:

Reply from 10.13.197.57: bytes=32 time<1ms TTL=64
Reply from 10.13.197.57: bytes=32 time<1ms TTL=64
Reply from 10.13.197.57: bytes=32 time<1ms TTL=64
Reply from 10.13.197.57: bytes=32 time<1ms TTL=64

Ping statistics for 10.13.197.57:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Documents and Settings\Lbitter>
```

Figure 11. Ping Command on a Command Prompt Screen

7. After verifying that the IP address change was successful, issue the `arp -d` command at the DOS prompt to remove the address from the computer ARP table.

For example:

```
arp -d 10.13.197.57
```

A space must separate `arp` from the hyphen (-).

Setting Up and Configuring the PC1 Using a Web Browser

To set up the PC1 for Ethernet communication using a web browser, you must temporarily configure the PC to communicate with the interface. Then you can change the default settings of the PC1 (IP address, subnet mask, and [optionally] administrator name and password) in order to use the unit on an intranet (LAN) or on the Internet (WAN). After you have set up the PC1 for network communication, you can reset the computer to its original network configuration.

IPL T PC1 LAN port defaults

PC1 IP address:	192.168.254.254
Gateway IP address:	0.0.0.0
Subnet mask:	255.255.0.0
DHCP:	Off
Link speed and duplex level:	Auto detected

If you use an existing Ethernet LAN intranet, your network administrator can provide you with a unique IP address for the PC1 or confirm whether you need to set up the PC1 for DHCP (Dynamic Host Configuration protocol) to have an address assigned automatically.

Setting Up the Computer for IP Communication

Follow these steps to set up communication between your computer and the PC1 using Windows 2000, Windows XP, or Windows 7.

NOTE: The procedure and illustrations in this section are for Windows XP. For other Windows versions, the screens may appear slightly different.

1. Open the Network Connections page as follows:
 - a. From the **Start** menu, select **My Network Places**.
 - b. From the **Network Tasks** side-bar menu, select **View Network** connections.
2. Right-click **Local Area Connection**, then select **Properties**.

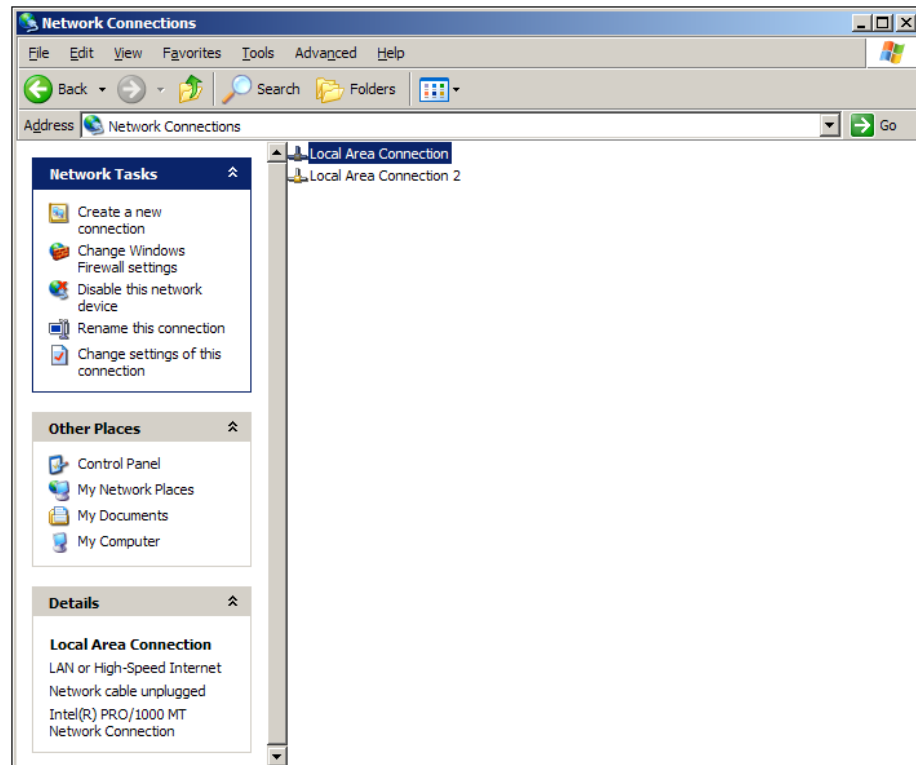


Figure 12. Network Connections Window

3. On the Local Area Connection Properties window, select **Internet Protocol (TCP/IP)**, then click the **Properties** button. If **Internet Protocol (TCP/IP)** is not on the list, you must install it (see the Windows user manual or the Windows online help system for the procedure).

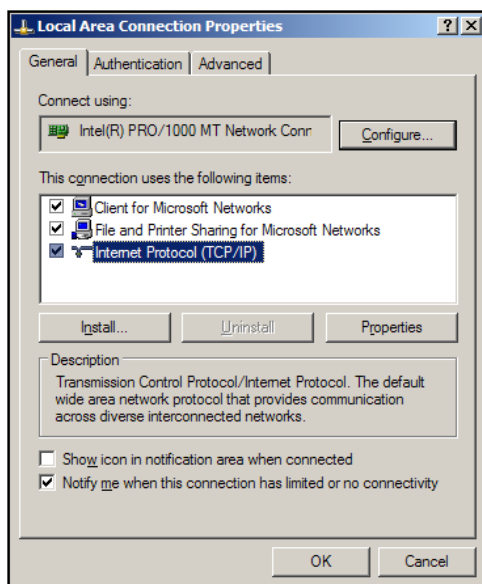


Figure 13. Internet Protocol (TCP/IP) Selected on Local Area Connection Properties Window

4. Write down the current IP address and subnet mask of your computer below. You will need to restore these settings to the computer later.

If the **Obtain an IP address automatically** radio button has been selected, make a note of that.

5. On the Internet Protocol (TCP/IP) Properties window, change your computer IP address temporarily so that it can communicate with the PC1:
 - a. Select the **“Use the following IP address”** radio button.
 - b. Enter the following values as shown below:

IP address: 192.168.254.253

Subnet mask: 255.255.0.0

Default gateway: Blank or 0.0.0.0

(The temporary IP address differs from the PC1 factory default by 1 digit.)

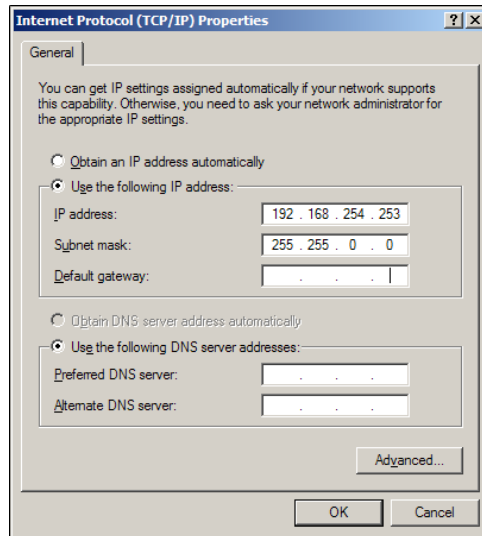


Figure 14. Internet Protocol (TCP/IP) Properties Window for Windows XP

- c. Click **OK** to save the changes and exit the network setup.
- d. Reboot the computer if required for the changes to become effective.
6. Plug one end of a Category 5, 6, or 6E network crossover cable into the Ethernet (LAN) connector on the PC1 rear panel (see **“Wiring the Local Area Network (LAN) Port”** in the “Installation and Rear Panel” section for information on wiring the RJ-45 LAN connector). Plug the other end of the Ethernet cable into the Ethernet port on the computer.

NOTE: If you are using a network hub or switch between the computer and the PC1, use a straight-through Category 5 cable instead of a crossover cable.

7. Set up the PC1 IP address (see **“Configuring the IPL T PC1 Using a Web Browser,”** below, for the procedure).

Once the PC1 has been reconfigured, you can subsequently use an Ethernet (intranet or Internet) connection to configure or control it.

NOTE: Both your computer and the PC1 must be connected to the same LAN.

Configuring the IPL T PC1 Using a Web Browser

The default web pages that are preloaded on the PC1 are compatible with popular web browsers such as Internet Explorer (version 5.5 or higher).

NOTE: The following instructions assume that you have configured the Windows-based computer, connected it to the PC1 LAN port, and powered on the interface.

1. Obtain a valid IP address, subnet mask, and gateway address for the PC1 from your network administrator.
2. Launch a web browser (such as Internet Explorer) on the connected computer (for which you set up the network configuration earlier), and enter the default address of the PC1, `http://192.168.254.254`, in the address box. The PC1 default web page is displayed.

3. Select the **Configuration** tab, then select **System Settings** from the sidebar menu on the left of the screen. The PC1 System Settings page appears, showing the default IP address.

Extron Electronics

Status Configuration File Management 800.633.9...
 Logged on: Admin Log Off Contact

System Settings

Below are your Unit's basic System Settings. Most units will work with the default IP Settings without making any changes. If you require help changing your settings, please refer to the user guide.

IP Settings

Unit Name: IPL-T-PC1i-01-33-D0
 DHCP: On Off MAC Address: 00-05-A6-01-33-D0
 IP Address: 10.13.197.57 Firmware: 1.12
 Gateway IP Address: 10.1.0.5 Model: IPL T PC1i
 Subnet Mask: 255.255.0.0 Part Number: 60-544-20

Submit Cancel

Date/Time Settings

Date: 5/29/2007 Local Date/Time
 Time: 2:42 PM
 Zone: (GMT-08:00) Pacific Time (US & Canada), Tijuana
 Daylight Saving: Off USA Europe Brazil

Submit Cancel

Executive Mode Settings

Executive Mode: Off On

Figure 15. System Settings Page with Default IP Address

4. Enter the new IP address assigned for the PC1, the corresponding subnet mask, and gateway address, then click **Submit**.
 IP, gateway, and subnet mask addresses follow standard naming and numbering conventions and protocol (*nnn.nnn.nnn.nnn*). Your IP network administrator should provide the addresses to be used with this interface.
 The PC1 can take up to 2 minutes to store the new settings. When the PC1 IP address is changed, your computer loses communication with it, and a screen appears, indicating that the page cannot be displayed.
5. Close the browser.
6. After changing the IP settings of the PC1, restore the original TCP/IP settings to your computer and reboot it if necessary (see the addresses you wrote down in step 4 of the "**Setting up the Computer for IP communication**" procedure, earlier in this section.) You are now able to access the PC1 web pages to configure the front panel.

Using the IPL T PC1 Web Pages

The IPL T PC1 features an embedded web server, which includes factory set web pages. These pages can be replaced with user-designed files, but the default web pages provide many basic features for configuring, and controlling the PC1 via a web browser. This section provides an overview of the embedded web pages.

To access the embedded web pages:

1. Launch a web browser (for example, Internet Explorer) on your connected computer.
2. On the browser Address line, enter the PC1 IP address.

If you have previously created a Global Configurator 3 project for the PC1, the web page opens in the GlobalViewer format. To display it in the default web page format, enter the PC1 IP address, followed by `/nortxe_index.html`.

Example: `10.26.188.44/norte_index.html`.

See the *IPL T PC1 Setup Guide*, delivered with your PC1, for information on using Global Configurator.

NOTE: If a password has been set, the Enter Network Password dialog box opens. If no password has been set, the PC1 web page opens, displaying the System Status page. (Skip steps 3 and 4.)

3. Enter the administrator password in the **Password** field. Leave the **User Name** field blank.

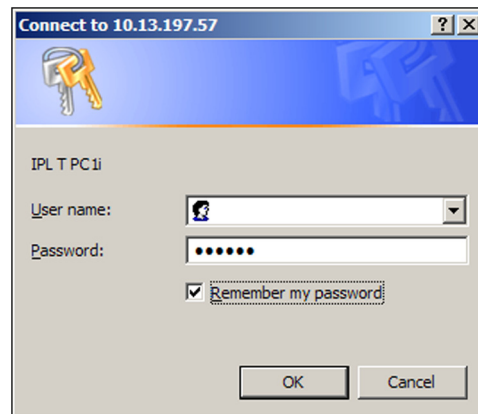


Figure 16. Password Prompt Window


4. Click **OK**. The PC1 web page is displayed.

NOTES:


- Passwords must contain 4 to 12 alphanumeric characters. Spaces and non-alphanumeric symbols are not allowed, and the passwords are case sensitive.
- Administrators have access to all of the web pages and are able to make changes to settings. Users can access only the System Status page.


Viewing the System Status

The System Status web page, accessed by clicking the **Status** tab, provides information on the current settings. Changes must be made via the Configuration web pages or SIS programming commands (see “**SIS Programming and Control**”). Personnel who have user access can view this page but cannot access the Configuration or File Management pages.

Extron Electronics 

Status Configuration File Management 800.633.98

Logged on: Admin Log Off  Contact U



www.extron.com

System Status

Below are your Unit's current system settings. To make changes, click on the 'Configuration' tab.

System Description

Model: IPL T PC1i
 Description: One 220VAC Switched AC Receptacle, One Bi-Directional Serial Port [RS-232], One IR Port, One Contact Input Port
 Part Number: 60-544-20
 Firmware: 1.12
 Date: 5/29/2007
 Time: 2:34 PM

IP Settings

Unit Name: IPL-T-PC1i-01-33-D0
 DHCP: Off
 IP Address: 10.13.197.57
 Gateway IP Address: 10.1.0.5
 Subnet Mask: 255.255.0.0
 MAC Address: 00-05-A6-01-33-D0

Port, AC, and Executive Mode Settings

Port Type: RS-232 Baud Rate: 9600 Data Bits: 8 Parity: None Stop Bits: 1 Flow Control: None	Port Type: Contact Input Status: Off AC Receptacle Settings: Name: Receptacle 1 Power: On Executive Mode: Off
--	--

Current Schedule

Receptacle	Name	Power	Current Schedule						
			Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	Receptacle 1	On	-	-	-	-	-	-	-
		Off	-	-	-	-	-	-	-

Executive Mode

Executive Mode	Power	Current Schedule						
		Sun	Mon	Tue	Wed	Thu	Fri	Sat
Executive Mode	On	-	-	-	-	-	-	-
	Off	-	-	-	-	-	-	-

Figure 17. System Status Screen

The System Status page displays information in the following categories:

- **System Description:** Includes product model, port and receptacle description, part number, firmware version, and the current date and time.
- **IP Settings:** Displays the unit name, DHCP status, IP address, gateway address, subnet mask, and the MAC address.
- **Port, AC, and Executive Mode Settings:** Shows settings for the RS-232 and Contact Input ports, name and On or Off status for the AC receptacle, and whether lock mode (executive mode) is on or off.
- **Current Schedule:** Shows the schedule currently in place for powering the output device on and off, and for enabling and disabling executive mode.

Using the Configuration Pages

To access the Configuration pages, select the **Configuration** tab. There are seven web pages that can be accessed from the Configuration page. They are listed in the sidebar menu at the left of the page. These pages are described in the following sections.

Specifying system settings

On the System Settings page, you can set the date and time, change the IP address information for the PC1, and enable or disable lock mode.

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System Settings

Below are your Unit's basic System Settings. Most units will work with the default IP Settings without making any changes. If you require help changing your settings, please refer to the user guide.

IP Settings	
Unit Name:	IPL-T-PC1i-01-33-D0
DHCP:	<input type="radio"/> On <input checked="" type="radio"/> Off
IP Address:	192.168.254.254
Gateway IP Address:	0.0.0.0
Subnet Mask:	255.255.0.0
MAC Address:	00-05-A6-01-33-D0
Firmware:	1.12
Model:	IPL T PC1i
Part Number:	60-544-20

Submit Cancel

Date/Time Settings	
Date:	6 / 12 / 2007 Local Date/Time
Time:	8 : 39 PM
Zone:	(GMT) Greenwich Mean Time : Dublin, Edinburgh, Lisbon, London, Casablanca, Monrovia
Daylight Saving:	<input type="radio"/> Off <input checked="" type="radio"/> USA <input type="radio"/> Europe <input type="radio"/> Brazil

Submit Cancel

Executive Mode Settings	
Executive Mode:	<input checked="" type="radio"/> Off <input type="radio"/> On

Figure 18. System Settings Screen on the Configuration Page

1. On the Configuration page, select **System Settings** from the sidebar menu at the left edge of the screen. The System Settings page appears, displaying either the factory default information for your PC1 or the settings submitted most recently.
2. Enter your new information in the IP Settings section, or select the date and time from the menus in the Date/Time Settings section, as described in the following sections.

IP settings

The following settings are available in the IP Settings section:

- **Unit Name:** The default is the product name followed by the last six digits of the MAC address. You can give the unit a new name (such as **LightsOn&Off** or **BoardroomA-PC1**) consisting of up to 24 alphanumeric characters including the hyphen (-).

NOTE: The first character must be an alpha character, and the last character cannot be a hyphen. The unit name is not case sensitive.

- **DHCP:** DHCP is a communications protocol that assigns addresses on the local network automatically. Select the **On** or **Off** radio button to enable or disable DHCP.

NOTE: When DHCP is set to On, all other IP settings are disabled except Unit Name.

- **IP Address:** You can enter a new network address, a 32-bit number consisting of four sets of 8-bit numbers, separated by periods (*nnn.nnn.nnn.nnn*).
- **Gateway IP Address:** A gateway is a device that connects your network with others that may be outside your local area network. You can enter your gateway address (obtained from your network administrator), using the same format that is used for the IP address. (If there is no gateway, this field defaults to *0.0.0.0*.)
- **Subnet mask:** The subnet mask is used to split IP networks into a series of subgroups (subnets). The mask is a binary pattern that is matched up with the IP address to turn part of the host ID address field into a field for subnets. You can enter a new subnet mask address using the same format that is used for the IP address.

To change the IP address settings:

1. In the IP Settings section, make entries or selections in the available fields as desired.
2. When finished making entries in this section, click **Submit** to implement them.

If you want to discard your entries without submitting them, click **Cancel** to restore the previous values (do not click **Submit**).

Date and time settings

The following settings are available in the Date/Time Settings section:

NOTE: This section lets you set the date and time on your PC1 unit. However, the passage of time is not reflected in the **Date** and **Time** fields on the web page. The page continues to display the settings you entered and does not increment them as time passes. However, the PC1 itself continues to keep the correct time internally.

To display the current time on the screen, click **Refresh** on your web browser screen.

- **Date:** Select month, day, and year from the pull-down menus.
- **Time:** Select hours, minutes, and am or pm from the menus.
- **Zone:** From the pull-down menu, select the time zone for the location of the PC1 (number of hours offset from Greenwich mean time).

- **Daylight Savings:** Daylight savings time (DST) is a one-hour offset that is observed in some countries. You can select one of the radio buttons to set the PC1 for daylight savings time for the U. S., Europe, or Brazil; or select **Off** to disable it.

The following daylight savings periods are observed:

- **U. S.** — Starts the second Sunday in March and ends the first Sunday in November. (Daylight saving time should be turned off in Hawaii, American Samoa, most equatorial regions, Guam, Puerto Rico, the U. S. Virgin Islands, eastern time zone portion of the state of Indiana, and the state of Arizona (excluding the Navajo Nation).)
 - **Europe** — Starts the last Sunday in March and ends the last Sunday in October. (Daylight saving time should be turned off in Iceland.)
 - **Brazil** — Starts the first Sunday in October and ends the third Sunday in February. (Daylight saving time should be turned off in equatorial Brazil.)
3. When you have made all the desired changes in the Date/Time Settings section, click the **Submit** button at the bottom of the section. The new date and time settings are displayed in the fields in which you entered them.

If you want to discard your new entries without submitting them and restore the previous settings, click **Cancel** (do not click **Submit**).

Configuring the RS-232 Port and the AC Receptacle

The Port & AC Settings screen, accessed from the Configuration screen, enables you to specify settings for the RS-232 port and the rear panel AC receptacle.

The screenshot shows the Extron Electronics web interface. At the top, there's a navigation bar with 'Status', 'Configuration', and 'File Management' tabs. The 'Configuration' tab is active. Below the navigation bar, there's a sidebar with a menu of system settings options: System Settings, Port & AC Settings, IR Drivers, Passwords, Email Alerts, Firmware Upgrade, and Schedule. The main content area is titled 'Port & AC Settings' and contains a form with two sections: 'Port Settings' and 'AC Receptacle Settings'. The 'Port Settings' section includes dropdown menus for Port Type (RS-232), Baud rate (9600), Data Bits (8), Parity (None), Stop Bits (1), and Flow control (None). The 'AC Receptacle Settings' section includes a dropdown for Name (Receptacle 1) and radio buttons for Power (On/Off). At the bottom of the form, there are 'Submit' and 'Cancel' buttons.

Figure 19. Port & AC Settings Page

Contact input port

This field shows the status of the contact input port. If **On** is selected, the contact is closed (connected to ground). If **Off** is selected, the contact is open (not connected to ground).

NOTE: You cannot make changes in this field; it only reflects the condition of the port.

RS-232 port

From the drop-boxes in the port type section, you can select the baud rate, data bits, parity, stop bits, and flow control for the PC1 serial COM port.

Click **Submit** to enter your selections.

If you click **Cancel** before submitting your selections, your entries are reset to the last saved parameters.

Defaults are:

Baud Rate: 9600
Data Bits: 8
Parity: None
Stop Bits: 1
Flow control: None

AC receptacle

In the AC Receptacle Settings section, you can do the following:

- Enter a name for the receptacle, which could reflect the output device connected to it, the room in which the device is located, and so forth. The name can be 1 to 12 characters. The following characters are **not** permitted:

% + = ~ ` : ; “ ‘ , . | \

By default, the receptacle is named Receptacle 1.

- Select the **On** or **Off** radio button to power the connected device on or off.

Click **Submit** to implement your changes. If you click **Cancel** before submitting your selections, your entries are reset to the last saved parameters.

Using the IR Drivers page

The IR Drivers page lets you view the IR drivers that have been uploaded to the PC1 via the File Management page (see “[Managing Files](#),” later in this section). You can also view the commands contained within the IR driver, and cause the connected output device to perform (“play”) any of the listed commands.

For an IR driver to appear on this page, you must rename its file to a number with an .eir extension (for example, 1.eir, 2.eir, and so forth) before uploading it via File Management. When the driver is displayed on the IR Drivers page, its device name also is displayed.

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IR Drivers

This page allows you to view the IR Driver files loaded on your IP Link product. Click on a driver file below to view the IR Commands contained in the file.

Driver	File Name	Description	Date Created
1.eir	jvc_34_2397_1.eir	JVC HR-XVC37U	Tue Mar 7 2006 03:10PM
2.eir	bang_5_269_2.eir	Bang and Olufsen AV 9000	Fri Apr 7 2006 09:05AM
3.eir	sony_34_2201_2.eir	Sony SLV-D360P	Mon Aug 14 2006 03:31PM
4.eir	3m_1_209_2.eir	3M MP-8030	080403

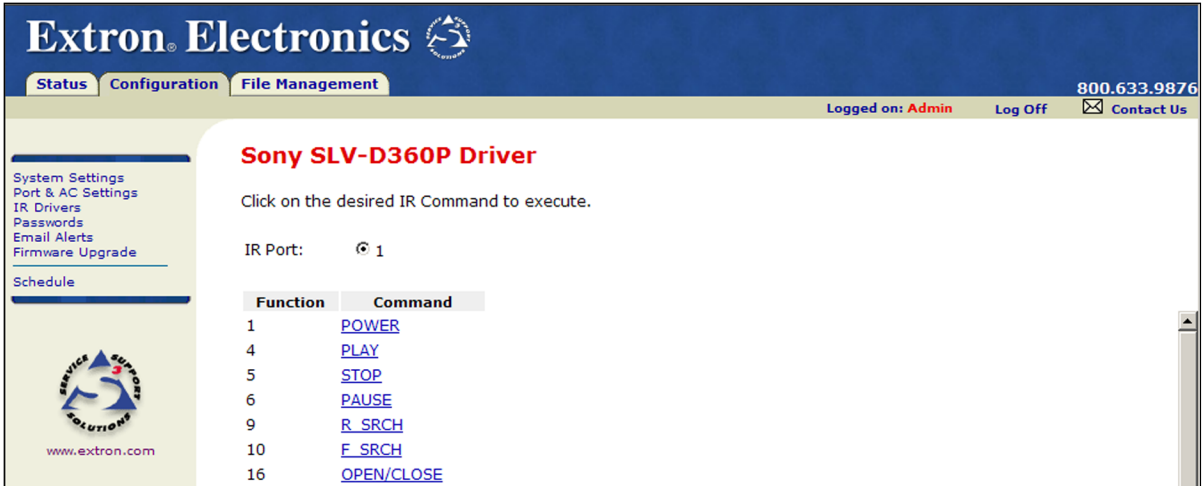
www.extron.com

Figure 20. IR Drivers Page

Performing a command

To play a command on the connected device:

1. Click on the driver file in the **Driver** (first) column to display a list of commands within the selected driver. The example below shows part of a driver command list page for a Sony SLV-D360P DVD/VCR combination.



The screenshot shows the Extron Electronics web interface. The top navigation bar includes 'Status', 'Configuration', and 'File Management' tabs. The user is logged in as 'Admin'. The main content area is titled 'Sony SLV-D360P Driver' and contains a table of IR commands. The table has two columns: 'Function' and 'Command'. The commands listed are POWER, PLAY, STOP, PAUSE, R_SRCH, F_SRCH, and OPEN/CLOSE.

Function	Command
1	POWER
4	PLAY
5	STOP
6	PAUSE
9	R_SRCH
10	F_SRCH
16	OPEN/CLOSE

Figure 21. Example of a Driver Command List Page

2. Click on a command name. The connected device performs the selected function.

Assigning passwords

The Passwords screen allows you to assign passwords to the administrator and user access levels.

The administrator password gives access to all IPL T PC1 web pages, enabling the administrator to configure the PC1.

The user password provides access only to the System Status web page. If you are logged in as user, you see only the **Status** tab with the System Status page. You cannot make any configuration changes.

To assign passwords:

1. On the Configuration page, select **Passwords** from the sidebar menu.
2. Enter the new administrator password in the **Administrator Password** field. Passwords must contain 4 to 12 alphanumeric characters.

Spaces and non-alphanumeric symbols are not allowed, and the passwords are case sensitive.

3. In the **Re-enter Admin Password** field, enter the same password again to confirm it.

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Passwords

To update the Administration Password, enter the desired password, repeat the entry, and press 'Submit'. To update the User Password, enter the desired password, repeat the entry, and press 'Submit'. To clear a password, enter a single space, repeat the entry, and press 'Submit'. Minimum password length is 4 characters. Maximum password length is 12 characters. Passwords are case sensitive and special characters are not allowed.

Passwords

Administrator Password: Re-enter Admin Password:

User Password: Re-enter User Password:

Submit Cancel

Figure 22. Passwords Page with Administrator and User Passwords Entered

4. If you want to assign a user password, enter it in the **User Password** field.

NOTE: You cannot assign a user password unless an administrator password has either been assigned or is being assigned at the same time.

5. Reenter the same user password in the **Re-enter User Password** field.
6. Click **Submit** to set the passwords.

Removing passwords

To remove a password:

1. On the Configuration page, select **Passwords** from the sidebar menu.
2. In the **Administrator Password** or the **User Password** field, delete the characters that are there, and press the <Spacebar> to enter a space.
3. In the **Re-enter Admin Password**, the **Re-enter User Password**, or both fields, delete the characters that are there, and press the <Spacebar> to enter a space.
4. Click **Submit**.

NOTE: Deleting the administrator password also deletes the user password.

Entering e-mail addresses

If you have created scheduled events or monitoring tasks through the Global Configurator software, you may have e-mail alerts with a message corresponding to an event or task (for example, a timer notification indicating that it is time to replace a projector light bulb). The PC1 web pages allow you to conveniently make changes to your alerted e-mail addresses and to change your message file.

Initial setup and settings changes must be made in the Global Configurator software.

The e-mail alert can notify up to 49 recipients at one time; the Email Alerts page lets you enter up to 49 e-mail addresses.

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Email Alerts

The settings below will allow you to configure your unit to send email alerts. Click 'Edit' and enter the email address to send a message to, and the file name that contains the message. File names must be alpha-numeric and are limited to 7 characters including the .eml file extension. Click 'Save' to save the change.

Email Settings

Mail IP Address:

Domain Name:

SMTP Authentication Required

User Name:

Password:

	Email Address	File Name	
1.	<input type="text" value="DLance@marlindo.com"/>	<input type="text" value="1.eml"/>	<input type="button" value="Save"/>
2.	<input type="text"/>	<input type="text"/>	<input type="button" value="Edit"/>
3.	<input type="text"/>	<input type="text"/>	<input type="button" value="Edit"/>
4.	<input type="text"/>	<input type="text"/>	<input type="button" value="Edit"/>
5.	<input type="text"/>	<input type="text"/>	<input type="button" value="Edit"/>
6.	<input type="text"/>	<input type="text"/>	<input type="button" value="Edit"/>
7.	<input type="text"/>	<input type="text"/>	<input type="button" value="Edit"/>
8.	<input type="text"/>	<input type="text"/>	<input type="button" value="Edit"/>
9.	<input type="text"/>	<input type="text"/>	<input type="button" value="Edit"/>
10.	<input type="text"/>	<input type="text"/>	<input type="button" value="Edit"/>
11.	<input type="text"/>	<input type="text"/>	<input type="button" value="Edit"/>
12.	<input type="text"/>	<input type="text"/>	<input type="button" value="Edit"/>
13.	<input type="text"/>	<input type="text"/>	<input type="button" value="Edit"/>
14.	<input type="text"/>	<input type="text"/>	<input type="button" value="Edit"/>
15.	<input type="text"/>	<input type="text"/>	<input type="button" value="Edit"/>
16.	<input type="text"/>	<input type="text"/>	<input type="button" value="Edit"/>
17.	<input type="text"/>	<input type="text"/>	<input type="button" value="Edit"/>
18.	<input type="text"/>	<input type="text"/>	<input type="button" value="Edit"/>

Figure 23. E-mail Alerts Page (Upper Portion)

1. On the sidebar menu on the Configuration page, click **Email Alerts**.
2. On the Email Alerts page, click the **Edit** button located to the right of the **Mail IP Address** field. The page goes into Edit mode, and the **Edit** button changes to **Save**.
3. Enter your mail server IP address and your domain name in the appropriate fields. (This information is available from your network administrator.)
4. Click **Save** to save the information.

5. Click the **Edit** button at the end of the first address row in which you want to enter a new address or edit the existing one. The **Edit** button changes to **Save** (see the illustration above).
6. Enter the e-mail address of the alert recipient in the numbered box under **Email Address**.
7. In the **File Name** column, enter the name (seven characters maximum) of the file containing the alert message. The message file name must have the extension **.em1**.

NOTE: Due to the seven-character limit for full file names, it is recommended that you use numeric file names (for example, **1.em1**, **24.em1**, and so on). Numeric titles reduce the characters in the file name and assist in keeping the alert files organized. However, alphabetic titles are permitted.

8. Click the **Save** button beside the file name that you entered. The e-mail alert information is saved on the PC1, and the **Save** button becomes **Edit** again.
9. Repeat steps **5** through **8** for each e-mail recipient address that you want to add or edit.

Setting up SMTP authentication

On the Email Alerts page, you can also specify that SMTP (Simple Mail Transfer Protocol) authentication is needed for the PC1 to send mail to the e-mail server.

To set the PC1 to require SMTP authentication before the server accepts any e-mail:

1. To enable the SMTP authentication fields, click the **Edit** button at the right of the **Mail IP Address** field. The **Edit** button changes to **Save**.
2. Select the **SMTP Authentication Required** check box, located below the **Domain Name** field. This enables the **User Name** and **Password** fields below the check box.
3. In the **User Name** and **Password** fields, enter a user name and a password that senders must enter in order for the mail server to authenticate the sender.

For the user name, you can use any combination of letters, numerals, spaces, and symbols except the comma (,) and the single and double quotation marks (‘ and “). For the password, you can use all characters except the comma. The user name and password can each be from 1 to 30 characters.

NOTE: You must specify both a user name and a password.

4. Click the **Save** button next to the **Mail IP Address** field to save your user name and password.

To remove SMTP authentication requirement, click **Edit**, deselect the **SMTP Authentication Required** check box, then click **Save**.

Upgrading Firmware

The Firmware Upgrade page lets you browse to locate and upload a new version of firmware for your unit. The uploaded file must have the file extension `.S19`.

NOTE: The PC1 uses the same firmware as the IPL T PC1. However, it does not accept other firmware files, such as the `.s19` files for the IP Link S Series.

To find out the version of firmware that is currently loaded on your PC1, see “Firmware:” in the System Description section of the [System Status page](#).

Downloading the firmware from the web

To obtain the firmware file to load to your PC1:

1. Visit the Extron website (www.extron.com).
2. Click the **Download** tab.
3. On the Download Center page, click the **Firmware** link at the top of the left sidebar menu.
4. On the Archives line at the top of the Firmware page, click the letter **I**.
5. On the next page that appears, click the **Download** link at the right end of the IPL T PC1 or IPL T PC1i line.
6. Fill in the required information on the next Download Center page, and click the **Download IPLTPC1** button.
7. Click **Run** on the **File Download** window.
8. Follow the instructions on the installation wizard screens. The new firmware file is placed on your computer internal disk.

Updating the firmware

To upload a new version of firmware:

1. On the sidebar menu of the Configuration page, click **Firmware Upgrade**. The Firmware Upgrade page is displayed, showing the version of firmware that is currently loaded.

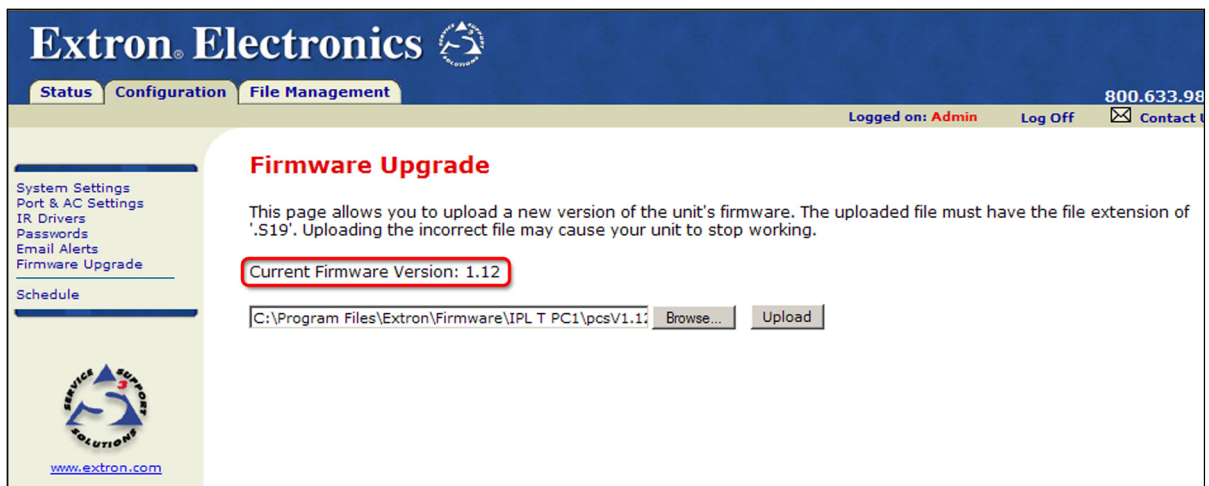


Figure 24. Firmware Upgrade Page

2. Click **Browse** to open a Choose file window.

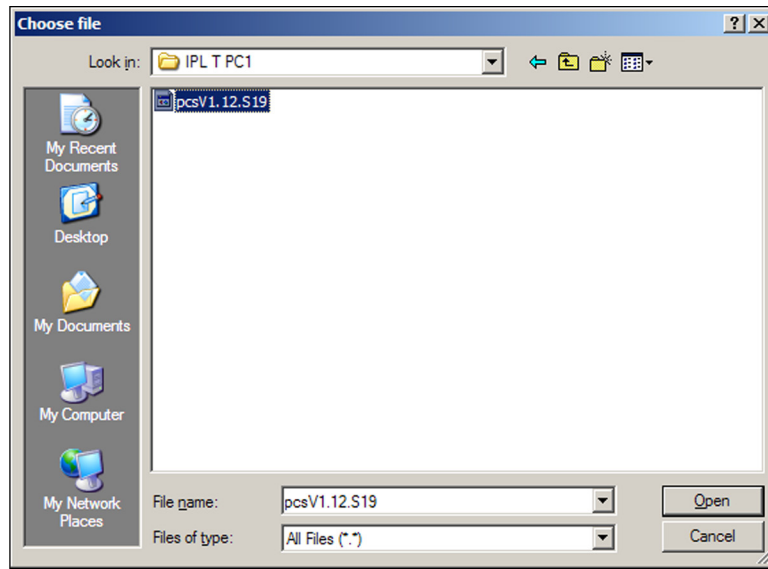


Figure 25. Firmware File Selected on the Choose File Window

3. In the Choose file window, locate the new firmware version file on your computer and double-click it. (Firmware files must have the extension .S19.) By default, this file is placed at:

c: \Program Files\Extron\Firmware\IPL_T_PC1\pcsVx.xx.S19

The firmware file name and path are displayed in the **Current Firmware Version** field on the Firmware Upgrade screen.

4. Click **Upload**. When the firmware upgrade is complete, the Power LED on the unit blinks three times.

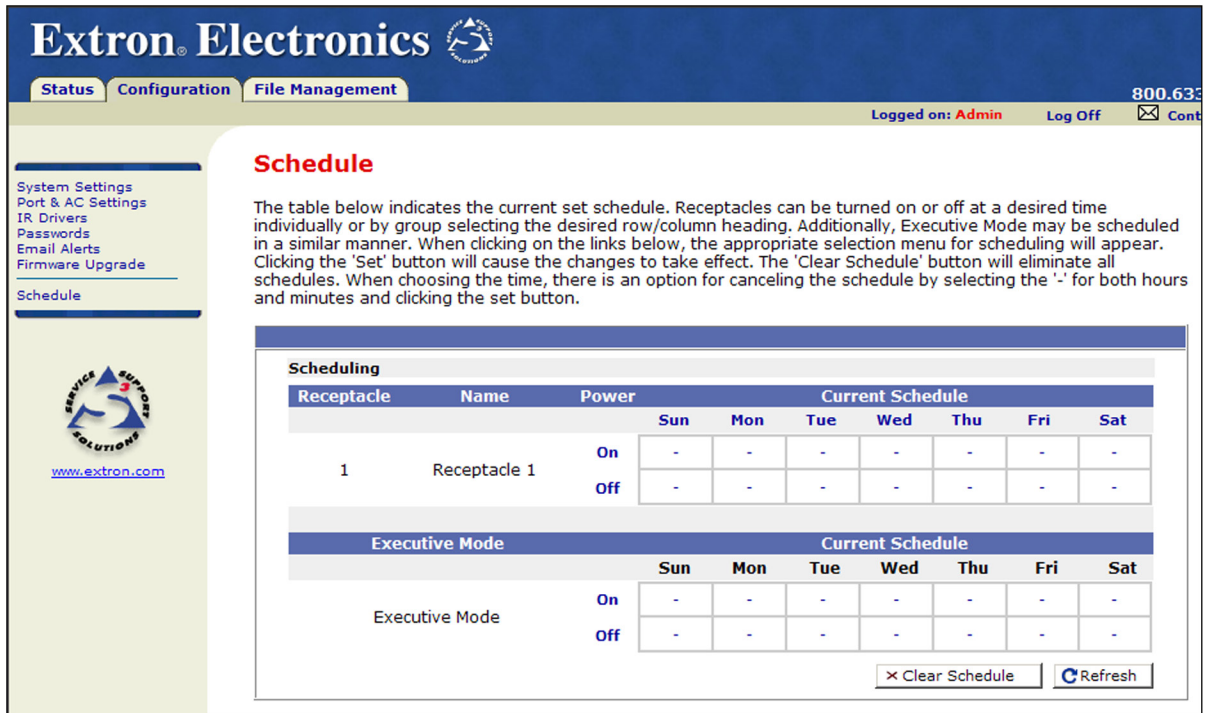
NOTES:

- If you attempt to upload a file with an extension other than .S19, the PC1 recognizes it as invalid and ignores it, reverting to the last successfully uploaded firmware version.
- The new firmware version number does not immediately appear on the Firmware Upgrade screen. To verify that the new version was uploaded, click the Status tab to view the System Status screen. When you return to the Firmware Upgrade screen, the new version number is displayed there also.

Scheduling

The Schedule page accessed from the Configuration screen lets you schedule when power to the receptacle turns on and off. You can also schedule lock mode, specifying when the PC1 front panel will be locked. Clicking the **Clear Schedule** button at the bottom of the screen deletes all schedules. You may want to set up your schedule for a week at a time, or a day at a time.

To access the Schedule page, click **Schedule** on the sidebar menu on the Configuration page.



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Schedule

The table below indicates the current set schedule. Receptacles can be turned on or off at a desired time individually or by group selecting the desired row/column heading. Additionally, Executive Mode may be scheduled in a similar manner. When clicking on the links below, the appropriate selection menu for scheduling will appear. Clicking the 'Set' button will cause the changes to take effect. The 'Clear Schedule' button will eliminate all schedules. When choosing the time, there is an option for canceling the schedule by selecting the '-' for both hours and minutes and clicking the set button.

Scheduling									
Receptacle	Name	Power	Current Schedule						
			Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	Receptacle 1	On	-	-	-	-	-	-	-
		Off	-	-	-	-	-	-	-
Executive Mode									
Executive Mode			Current Schedule						
			Sun	Mon	Tue	Wed	Thu	Fri	Sat
		On	-	-	-	-	-	-	-
		Off	-	-	-	-	-	-	-

Figure 26. Schedule Page

On the Schedule page:

- When you click on a day, **On**, **Off**, or the contents of any cell in the Current Schedule table (a time or a dash [-]), a Set Schedule For section displays above the Scheduling section. In this field you enter your settings for power or executive mode.
- To close the Set Schedule For section without saving your entries in it, click **Refresh** at the bottom of the screen.
- If you want to clear all power and executive mode settings from the schedule, click **Clear Schedule**, at the bottom of the screen.

Scheduling output receptacle power

To schedule power on and off to the output receptacle:

1. In the Receptacle 1 section, click **On** or **Off** to select the power setting that you want to schedule for the week. A Set Schedule For section appears above the Scheduling section, displaying the receptacle number (always 1, for PC1/PC1i), the power selection you clicked (**On** or **Off**), and menus from which to select the hour, minutes, and am/pm.

The illustration below shows the Set Schedule For section, with **Power On** scheduled for 6:00 am Monday through Friday.

Set Schedule For

Receptacle 1 - Receptacle 1: Power ON: :

Sun Mon Tue Wed Thu Fri Sat

Scheduling

Receptacle	Name	Power	Current Schedule						
			Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	Receptacle 1	On	-	-	-	-	-	-	-
		Off	-	-	-	-	-	-	-

Figure 27. “Set Schedule For” Section, Displayed for Receptacle 1

2. From the drop-down menus, select the time (hour, minutes, and am or pm) at which you want power turned on or off.
3. Select the check boxes for the days of the week you want the receptacle to be turned on or off at the time you specified.
4. When finished, click **Set** to save your settings and close the Set Schedule For section. The settings you entered appear in the Current Schedule in the Receptacle 1 section.
5. Repeat steps **1** through **4** for any additional power settings you want to make.

Scheduling front panel lockout (executive mode)

1. In the Executive Mode section, click **On** or **Off** to select the lock mode setting that you want to schedule. A Set Schedule For section appears above the Scheduling section, displaying the current status of Executive Mode (On or Off); menus from which to select the hour, minutes, and am or pm; and check boxes for the days of the week.

The illustration below shows the Set Schedule For section, with executive mode scheduled to be disabled at 6:00 am Monday through Friday. (In the Executive Mode section in the example below, front panel lockout has been scheduled to start at 7:30 pm, Monday through Friday.)

Set Schedule For

Executive Mode: OFF: : AM

Sun Mon Tue Wed Thu Fri Sat

Scheduling

Receptacle	Name	Power	Current Schedule						
			Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	Receptacle 1	On	-	-	-	-	-	-	-
		Off	-	-	-	-	-	-	-

Executive Mode			Current Schedule						
			Sun	Mon	Tue	Wed	Thu	Fri	Sat
	Executive Mode	On	-	7:30 PM	7:30 PM	7:30 PM	7:30 PM	7:30 PM	-
	Executive Mode	Off	-	-	-	-	-	-	-

Figure 28. “Set Schedule For” Field for Executive Mode

2. From the drop-down menus, select the time (hour, minutes, and am or pm) at which you want executive mode enabled or disabled.
3. Select the check boxes for the days of the week you want lock mode to be turned on or off at the time you specified.
4. When finished, click **Set** to save your settings and close the Set Schedule For section. The settings you entered appear on the Current Schedule in the Executive Mode section.
5. Repeat steps **1** through **4** as needed to specify lock mode settings for other days.

NOTE: You cannot set Receptacle On and Off for the same time.

Scheduling by day of the week

You can also select a day of the week and schedule all power and executive mode time settings for that day at one time:

1. Click on a day of the week at the top of a column in the Receptacle 1 scheduling table. Two Set Schedule For sections open, one for Power On and Executive Mode On and one for Power Off and Executive Mode Off. These sections contain drop-down menus for selecting on and off times as well as check boxes for selecting the receptacle (power) and executive mode.

In the illustration below, Sunday has been selected for scheduling.

Set Schedule For

Sunday: Power ON: 7 :00 AM

Receptacle:
 1 - Receptacle 1
 Executive Mode
 Set

Sunday: Power OFF: 5 :00 PM

Receptacle:
 1 - Receptacle 1
 Executive Mode
 Set

Scheduling

Receptacle	Name	Power	Current Schedule						
			Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	Receptacle 1	On	-	-	-	-	-	-	-
		Off	-	-	-	-	-	-	-

Executive Mode	Power	Current Schedule						
		Sun	Mon	Tue	Wed	Thu	Fri	Sat
Executive Mode	On	-	7:30 PM	7:30 PM	7:30 PM	7:30 PM	7:30 PM	-
	Off	-	-	-	-	-	-	-

× Clear Schedule Refresh

Figure 29. Schedule Screen Showing Fields for Daily Receptacle Scheduling

2. In either the Power ON or Power OFF section, select the hours, minutes, and am or pm from the menus; and select the check boxes for the items you want to schedule.
3. In the section in which you made your selections, click **Set** to enter your choices. The section closes.
4. If desired, repeat steps 2 and 3 in the other Set Schedule For section. If you do not want to make selections in the remaining Set Schedule For section, click **Refresh** to close the section.
5. Repeat steps 1 through 4 for any additional days that you want to schedule.

Changing an individual setting

Follow this procedure if you want to change only one setting on the scheduling table, either for powering on or off, or for executive mode.

1. In the Receptacle or Executive Mode scheduling table, click on the time displayed or the “-” symbol in the cell that you want to change, in the desired day column. A single-line Set Schedule For section appears above the Scheduling section.

In the following illustration, the red circle indicates the cell that was selected: receptacle powering off, on Monday.

Set Schedule For

Receptacle 1 - Receptacle 1: Monday: Power OFF: - : - AM

Scheduling

Receptacle	Name	Power	Current Schedule						
			Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	Receptacle 1	On	7:00 AM	-	-	-	-	-	-
		Off	5:00 AM	-	-	-	-	-	-

Executive Mode

Executive Mode	Power	Current Schedule						
		Sun	Mon	Tue	Wed	Thu	Fri	Sat
Executive Mode	On	-	7:30 PM	7:30 PM	7:30 PM	7:30 PM	7:30 PM	-
	Off	-	-	-	-	-	-	-

Figure 30. Set Schedule For Field to Set Powering Off for a Single Receptacle

2. From the drop-down menus in the Set Schedule For section, select the hour, minutes, and am or pm for the power or lock mode setting.
3. Click **Set** to enter your settings. The time that you entered appears in the cell that you selected on the Scheduling table.

Managing Files

The File Management screen allows you to upload and delete files, including IR drivers, from your computer or server. File names must contain valid alphanumeric characters or underscores; spaces and special characters (symbols) are not allowed. Only personnel with administrator access can view the File Management page and make changes.

Uploading files to the web page

The IPL T PC1 has approximately 7.25 MB of space for IR drivers, custom web pages, and other user files to be uploaded. The Bytes Left field shows how much user space remains for uploading files.

To upload files:

1. Select the **File Management** tab on the IPL T PC1 web page.
2. On the File Management page, click **Browse** to open a Choose file window.
3. On the Choose file window, locate and select a file to upload. (Only one file at a time can be selected.) The file name and directory path appear in the **Browse** field on the File Management screen (see [figure 31](#) on the next page).

Figure 31. File Management Screen with Three Files Uploaded

4. Click **Upload File**. While the file is uploading, the **Upload File** button label changes to **Uploading...**

When the uploading is complete, the uploaded file name appears in the **Files** column with a time stamp showing GMT time, and the button returns to its original state. (Files are listed separately under headings of their extensions.)

Adding a directory

To add a directory or folder to the IPL T PC1 file system:

1. Enter a name for the directory in the **Dir:** field, following the slash (/).
2. Click **Add Dir**.
3. With the directory name displayed, perform the **Uploading files** procedure described in the previous section to add a file to the directory. The directory name appears at the top of the Files column, preceded by a slash.

NOTE: If no files are added to the new directory, it is deleted when you open another directory.

To add more files to the directory, click the directory name to open it, then use the Uploading files procedure. To exit the directory, click on **(root)** in the **Files** column.

Other file management functions

On the File Management page, you can also do the following:

- Open and view an uploaded file by clicking on its name.
- Delete an uploaded file by clicking on the **Delete** button beside it.
- Delete all uploaded files and directories by clicking the **Delete All** button.

Custom Web Pages

On the IPL T PC1, custom web pages are supported. You can determine the layout and appearance of the pages displayed on your screen. Server side includes (SSIs) enable you to obtain information from the unit and display the information on web pages. Query strings allow you to send information and commands to the unit to change its configuration or provide you with feedback (see “[Query strings](#),” below).

Server Side Includes (SSIs)

Server side includes are a type of HTML comment that directs the web server to dynamically generate data for a web page whenever it is requested. SSIs typically use SIS commands to communicate with the products or attached control devices. Using SSIs, you can design and display custom pages, with PC1 information provided by the SIS commands (see the “[SIS Programming and Control](#)” section for these commands).

The basic format for an Extron SSI is `<!--#echo var="x"-->`, where *x* is the SIS command to be executed.

When a web page is requested, the web server removes the SSI and replaces it with the answer to the SIS command within quotes.

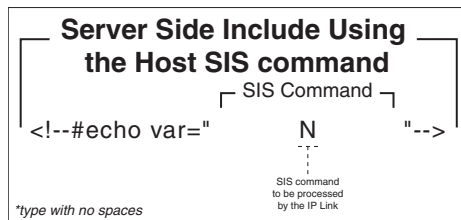


Figure 32. Example of the SSI Command

In the figure above, the N command is used to request the PC1 part number.

Query strings

A query string is the portion of a URL that appears after the question mark. The query string contains parameters or instructions for the web server to execute. The basic format for a query string within a link is:

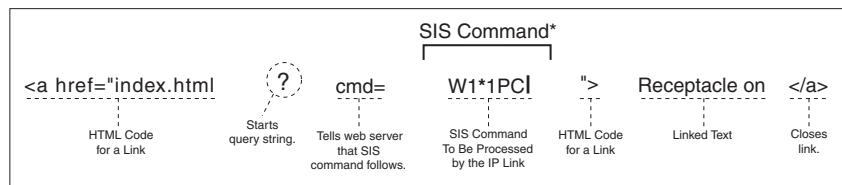
```
<a href="index.html?cmd=x">Receptacle 1</a>
```

where *x* is the SIS command to be executed.

When a link is accessed on a web page, the URL is passed to the web server to tell it which web page to return to the browser. The portion of the URL after the question mark is the query string, which contains the SIS command that the IPL T PC1 will remove and execute.

Like SSI formatted commands, query strings can use any valid SIS command.

The query string in the figure below turns off DHCP on the IP Link device.



*Enter with no spaces.

Figure 33. Example of a URL with a Query String Using an SIS Command

Code example

The following figure shows a practical use for both SSIs and query strings. In this example, the HTML source code contains three SSI commands.

```
<html>
<head><title>Example 1</title></head>
<h2 b>HTML Example #1</h2 b>
<body>
The following lines demonstrate how to read status from the IPLink Product:
IPLink Product Name: <b><!--#echo var="11"--></b>
<br>
IPLink Product Description: <b><!--#echo var="21"--></b>
<br>
IPLink Product Part Number: <b><!--#echo var="N"--></b>
</body>
</html>
```

SSI commands

Figure 34. Web Page HTML Source Code Document Showing SSIs

The SSI commands in the figure above request the product name, product description, and product part number of an IP Link device.

The figure below shows the HTML code that results from the SSIs shown in the above example.

```
<html>
<head><title>Example 1</title></head>
<h2 b>HTML Example #1</h2 b>
<body>
The following lines demonstrate how to read status from the IPLink Product:
IPLink Product Name: <b>IPL T PC1</b>
<br>
IPLink Product Description: <b>One Switched 110v AC Receptacle with
Serial and IR communication</b>
<br>
IPLink Product Part Number: <b>60-544-10</b>
</body>
</html>
```

Figure 35. Resulting HTML Source Code Served by an IP Link web Server

Notice, in the figure below, that the commands executed by the PC1 in response to SSI references have been replied to, and were implemented when the web page was served to the browser.

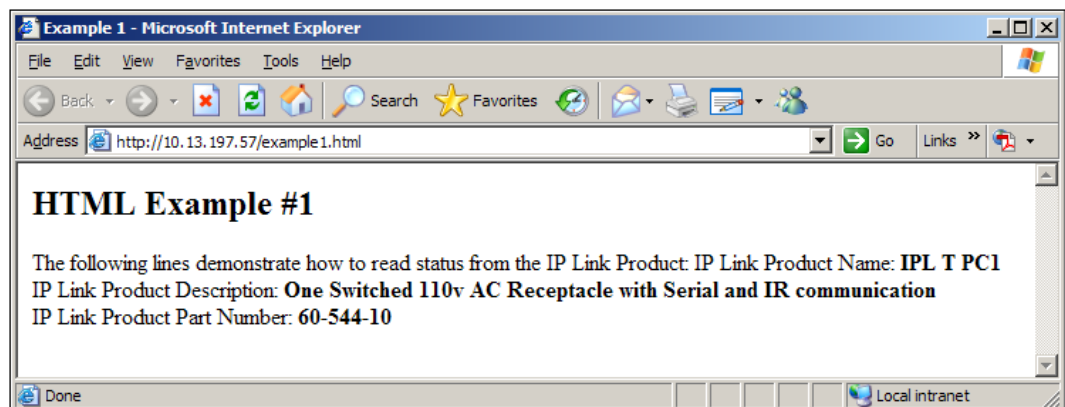


Figure 36. Browser View of Previous HTML Source Code

URL encoding

URL (Universal Resource Locator) encoding is the method of using ASCII hexadecimal characters to display specific characters in a URL. It is used for several reasons. On some operating systems, certain characters are unsafe or not available, and others are reserved by the HTML or URL specification. URL encoding is used to insure compatibility and functionality with most Internet browsers. As a general rule, use the hexadecimal encoding method shown below when these characters appear in your URLs.

The following types of characters do not require encoding in a URL:

Alphanumeric characters	0-9, a-z, A-Z
Special characters	\$ _ - . + ! * () ,
Reserved characters	; / ? : @ = &

NOTE: When used for their reserved purposes, these characters do **not** require encoding within a URL.

Figure 37. Characters that Do Not Require Encoding

Reserved characters

Reserved characters should not be encoded when they appear in their conventional meaning in a URL. For example, do not encode the slash (/) when using it as part of the URL syntax. Only encode unsafe characters (defined in the table in the next section) in your URLs.

The following table lists reserved characters.

Character		Hexadecimal	Decimal
\$	Dollar	24	36
&	Ampersand	26	38
+	Plus	2B	43
,	Comma	2C	44
/	Forward slash or virgule	2F	47
:	Colon	3B	59
=	Equal	3D	61
?	Question mark	3F	63
@	"At" symbol	40	64

Unsafe characters

URLs use some characters for “special use” in defining their syntax and these characters should be encoded. For various reasons, these characters may possibly be misunderstood within a URL.

The following table lists unsafe characters.

Character	Hexadecimal	Decimal
	20	32
“ ”	22	34
<	3C	60
>	3E	62
#	23	35
%	25	37
{	7B	123
}	7D	125
|	7C	124
\	5C	92
^	5E	94
~	7E	126
[	5B	91
]	5D	93
`	60	96

Accessing and Using Telnet (Port 23)

Telnet, short for Telecommunications Network, provides a way for you to connect to a computer or server (in this case, the PC1 interface) on a network. Once connected via Telnet, you can send ASCII serial commands (see the Command and Response Table for SIS Commands in the “SIS Programming and Control” section to configure and monitor the PC1 settings).

1. From your desktop **Start** menu, select **Run**, then enter `Telnet`, then click **OK**. The Telnet program starts (see the figure below).

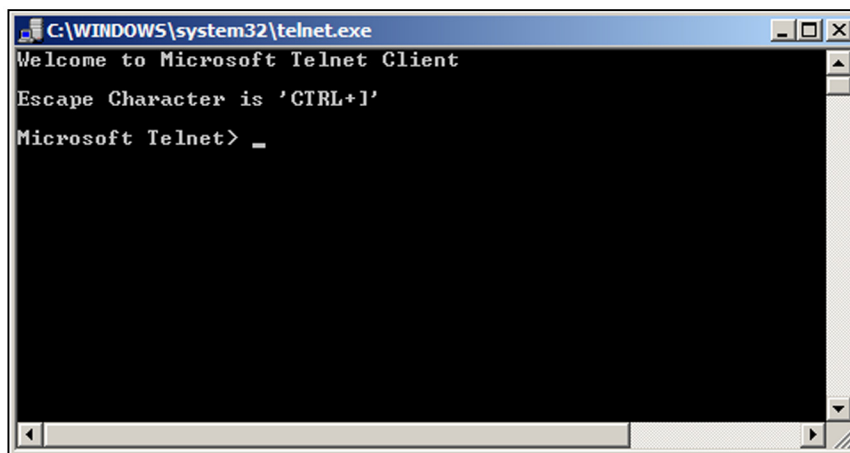


Figure 38. Telnet Command Prompt

2. At the command prompt, enter `open`.

3. At the <to> prompt, enter the IP address of the PC1 unit. (The default IP address is 192.168.254.254. If the address was changed in the setup or configuration process, use the new address.) Telnet defaults to port 23.

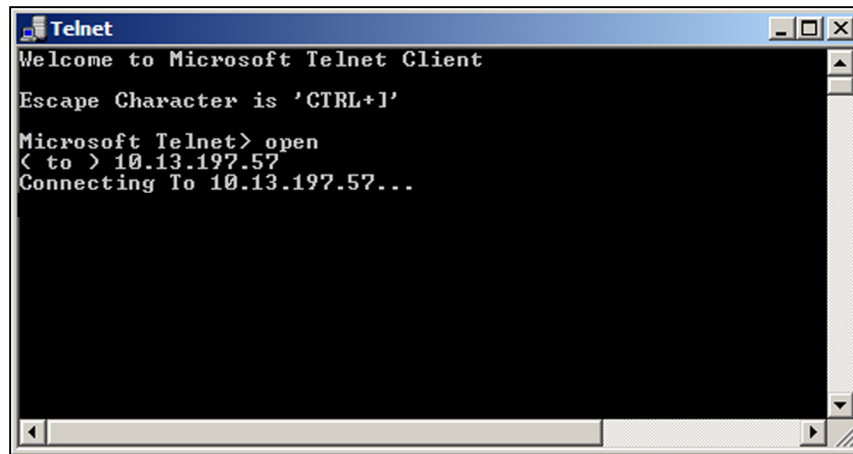
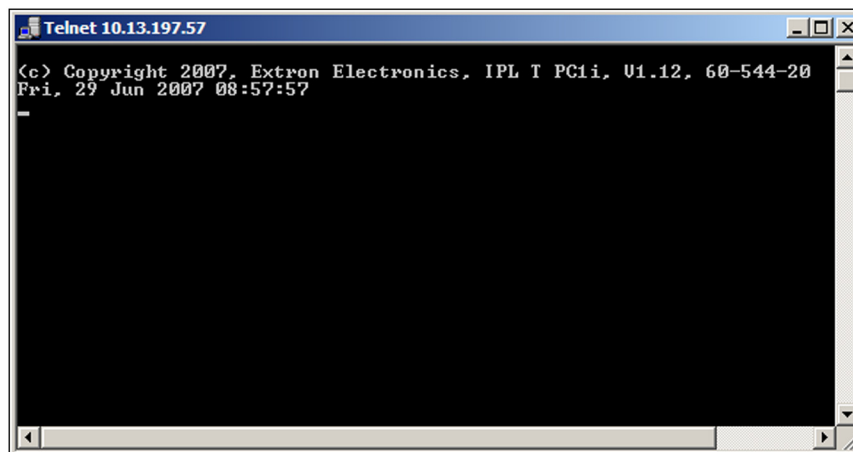


Figure 39. Connecting to the IP Address

4. If passwords were set up for the connected system, you are prompted to log in as an administrator or a user. Otherwise, the system responds with a carriage return and line feed (<CR/LF>).



5. Once you are connected, you can enter SIS commands as desired; for example, 1*1PC (power on) or 1*0PC (power off). See the "[SIS Programming and Control](#)" section for more information on entering SIS commands.
6. When you are finished entering commands to the interface, enter Ctrl+] at the command prompt to exit Telnet.

Troubleshooting

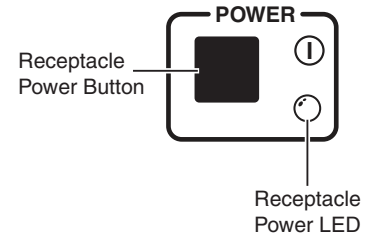
Turn on the equipment in the following order:

1. The PC1 power control interface
2. The power receptacles on the PC1
3. The connected output device on the AC receptacle.

If the output AV device cannot be powered on, check the following:

Power Connections

1. Make sure that the output receptacle is receiving power. The green Power LED on receptacle remains lit steadily while the receptacle has power. If necessary, press the receptacle Power button to apply power.
2. Ensure that the device is plugged in properly to the rear panel of the PC1 and switched on if applicable.



Network Connections

1. Check the network connections and make adjustments as needed. The green Link LED lights steadily while a network connection is detected. The yellow ACT LED blinks if there is activity on the network. If these LEDs are not lit, either the cable is faulty or not plugged in, or the wrong type of cable is being used (see [“Connecting the Hardware,”](#) in the “Installation and Rear Panel” section).
2. At the DOS command prompt, try to ping the unit by entering ping and the IP address assigned to your PC1 (see [“Setting Up and Configuring the PC1 Using ARP”](#)). If the PC1 is connected and communicating, you receive the following response to your ping command:

```
Command Prompt
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\>ping 10.13.172.44

Pinging 10.13.172.44 with 32 bytes of data:

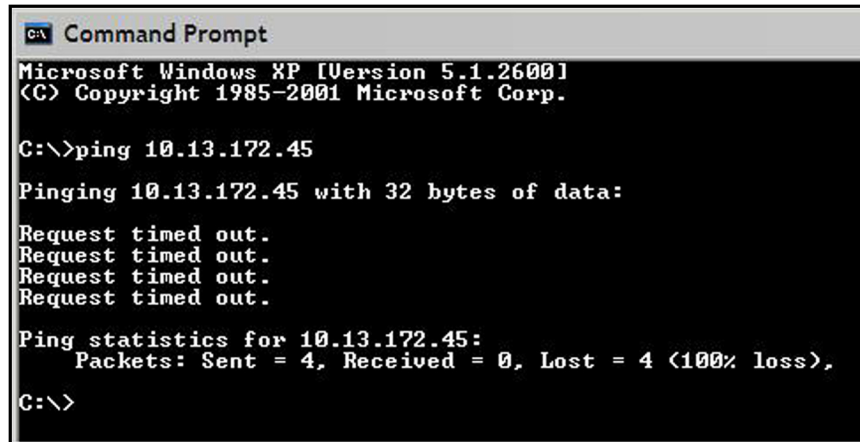
Reply from 10.13.172.44: bytes=32 time<1ms TTL=64
Reply from 10.13.172.44: bytes=32 time<1ms TTL=64
Reply from 10.13.172.44: bytes=32 time<1ms TTL=64
Reply from 10.13.172.44: bytes=32 time<1ms TTL=64

Ping statistics for 10.13.172.44:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Figure 40. Successful Ping Command Response

If a connection was not made, the following response appears:



```
CA Command Prompt
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\>ping 10.13.172.45

Pinging 10.13.172.45 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.13.172.45:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>
```

Figure 41. Response to an Unsuccessful Ping Command

If you get a response indicating that the ping was unsuccessful:

- a. Make sure your unit is using the appropriate subnet mask (check with your system administrator).
- b. Make sure your PC does not have a software firewall program which might block the IP address of the unit.
3. If contact is established with the unit, but the unit web pages cannot be accessed by your web browser, verify (in the **Options** or **Preferences** menu) that your web browser is configured for direct network connection and not set up to use a proxy server.

If you are still experiencing problems, call the Extron S3 Sales & Technical Support Hotline.

Global Configurator Software

The Global Configurator 3 (GC 3.3) software is an alternative to using the default web pages to configure and schedule the PC1. GC 3.3 is a free asset management software that enables flexible, centralized, web-based power management for AV systems. Using Global Configurator software, administrators can view the immediate status and power level of an output device, schedule actions such as powering on and off, monitor specified conditions, and configure its ports.

To download the latest version of Global Configurator 3 from the Extron website:

1. Select the **Download** tab on the Extron website home page.
2. From the sidebar menu at the left of the screen, select **Software**.
3. On the Download Center page, click the **Download** link at the right end of the Global Configurator line.
4. Fill in the required information on the next Download Center page, and click the **Download GCSWnnn.exe** button (where *nnn* is the GC3 version number).
5. Click **Run** on the File Download window.
6. Follow the instructions on the subsequent screens to install GC3.3 on your computer.

For instructions on using the GC3.3 software with the PC1, see the *IPL T PC1 Setup Guide*, provided with the PC1, and to the Global Configuration 3.3 help program, accessible from the GC3.3 main screen.

NOTE: GC 2.3 is the minimum version required to configure the PC1.

SIS Programming and Control

This section provides instructions on using the Extron Simple Instruction Set (SIS) commands, which you can use to set up and control the IPL T PC1 from a host computer or other control system attached to the rear panel LAN port. The following topics are discussed:

- **Host-to-Interface Communication**
- **Using the Command and Response Table**
- **Symbol Definitions**
- **Command and Response Table for SIS Commands**

As shipped, the PC1 works as a standalone interface, but cannot control any other devices until it is configured. You can set up and control the PC1 by using the front panel, the web pages, Global Configurator, or SIS commands. Both the web pages and the SIS methods are accessed via Ethernet LAN connection. The LAN port defaults are:

IPL T PC1 IP address:	192.168.254.254
Gateway IP address:	0.0.0.0
Subnet mask:	255.255.0.0
DHCP:	Off

Host-to-Interface Communication

SIS commands consist of one or more characters per field. No special characters are required to begin or end a command sequence. When the PC1 determines that a command is valid, it executes the command and sends a response to the host device. All responses from the interface to the host end with a carriage return and a line feed (CR/LF = **↵**), which signals the end of the response character string. (A string is one or more characters.)

Messages Initiated by the IPL T PC1

When a local event such as a front panel selection or adjustment takes place, the PC1 responds by sending a message to the host. No response is required from the host. The following PC1-initiated messages are sent (underlined):

```
© Copyright 2011, Extron Electronics, IPL T PC1[i], Vn.nn, 60-544-nn↵  
Www, DD Mmm 2011 HH:MM:SS↵
```

The PC1 sends the boot and copyright messages when it first powers on and is connected via Telnet or TCP/IP. *Vn.nn* is the firmware version number; *60-544-nn* is the product part number. The current date and time are displayed. If you are using a Telnet connection, the copyright message, date, and time are followed by a password prompt.

Password Information

The **← Password:** prompt is displayed only if there is a password defined in the unit. It requires a password (administrator level or user level) followed by a carriage return. The prompt is repeated if the correct password is not entered.

If the correct password is entered, the unit responds with **← Login Administrator ←** or **← Login User ←**, depending on the password entered. If the passwords are the same for both administrator and user, the unit defaults to administrator privileges.

Error Responses

When the PC1 receives a valid SIS command, it executes the command and sends a response to the host device. If the PC1 is unable to execute the command because the command is invalid or it contains invalid parameters, it returns an error response to the host.

The error response codes and their descriptions are as follows:

E12 – Invalid port number

E13 – Invalid value (the number is out of range/too large)

E14 – Not valid for this configuration

E17 – System timed out

E22 – Busy

E24 – Privilege violation

E25 – Device is not present

E26 – Maximum number of connections has been exceeded

E27 – Invalid event number

E28 – Bad filename or file not found

E30 – Hardware failure (followed by a colon [:] and a descriptor number)

E31 – Attempt to break port pass-through when it was not set

Error Response References

The following superscripted numbers are used within the command descriptions in the Command and Response table to identify commands that may respond as shown:

- ¹⁴ = commands that give an E14 (invalid command for this configuration) response if sent to an IPL product whose power configuration does not support the command.
- ²⁴ = commands that give an E24 (privilege violation) response if you are not logged in at the administrator level.
- ²⁷ = commands that may yield an E27 (invalid event number) response.
- ²⁸ = commands that may give an E28 (file not found) response.

Using the Command and Response Table

The PC1 can be controlled via either a Telnet (port 23) connection or a web browser (port 80) connection. The ASCII commands listed in the tables perform the same functions, but they are encoded differently to accommodate the requirements of each port (Telnet or web browser). The ASCII to hexadecimal (HEX) conversion table below is for use with the command and response tables.

ASCII to Hex Conversion Table																Esc	1B	CR	0D	LF	0A
Space →	20	!	21	"	22	#	23	\$	24	%	25	&	26	'	27						
	(	)	29	*	2A	+	2B	,	2C	-	2D	.	2E	/	2F					
	0	1	31	2	32	3	33	4	34	5	35	6	36	7	37						
	8	38	9	39	:	3A	;	3B	<	3C	=	3D	>	3E	? 3F						
	@	40	A	41	B	42	C	43	D	44	E	45	F	46	G 47						
	H	48	I	49	J	4A	K	4B	L	4C	M	4D	N	4E	O 4F						
	P	50	Q	51	R	52	S	53	T	54	U	55	V	56	W 57						
	X	58	Y	59	Z	5A	[	5B	\	5C	]	5D	^	5E	_ 5F				
	`	60	a	61	b	62	c	63	d	64	e	65	f	66	g 67						
	h	68	i	69	j	6A	k	6B	l	6C	m	6D	n	6E	o 6F						
	p	70	q	71	r	72	s	73	t	74	u	75	v	76	w 77						
	x	78	y	79	z	7A	{	7B	|	7C	}	7D	~	7E	DEL 7F						

Figure 42. ASCII to Hex Conversion Table

The command and response table lists valid ASCII (for Telnet) command codes, the corresponding URL (universal resource locator) encoded (for web browsers) command codes, the interface responses to the host, and a description of the command function or the results of executing the command.

- Upper- and lowercase characters can be used interchangeably in the command field unless otherwise specified.
- Commands may be sent back-to-back without spaces (for example, `2!65V1Z`).
- Numbers can be entered as 1, 2, or 3 digits (for example, `8V = 08V = 008V`).
- There are a few differences in how to enter the commands, depending on whether you are using Telnet or a web browser.
 - When using these commands through a web browser, you can use the URL reference to shorten the examples. "URL" refers to the full address of the control interface and web page reference, including all path information (that is, `http://192.168.100.10/myform.htm`).
 - To send any of the commands using a web browser you must prefix them with the full URL followed by `?cmd=`.
 - For control via a web browser, all non-alphanumeric characters must be represented as the hexadecimal equivalent, `%xx`, where `xx` represents the two-character hex byte. For example, a comma (,) would be represented as `%2C`. Characters such as `%`, `+`, and the space character must be encoded as hex bytes, or they will be misinterpreted by the interface.
 - Some characters differ depending on the method you use to send the commands:

Telnet

Escape (hex 1B)

Carriage return (hex 0D)

Web Browser

W (must **not** be hex encoded)

Pipe character (|) (must **not** be hex encoded)

- NOTES:**
- With Telnet you can use either an **Escape** command or a **W** command, and the carriage return or the pipe character. With the web browser, you must use a **W** command and the pipe character.
 - In either method, *Data* = Data that will be directed to a specified port and must be hex encoded if non-alphanumeric.

Symbol Definitions

- ↵ = CR/LF (carriage return + line feed) (hex 0D 0A)
 - ↶ = Soft carriage return (no line feed, hex 0D)
(For web browser commands, use the | [pipe] character instead of the soft return.)
 - | = Pipe (vertical bar) character
 - = Space
 - ²⁴ = The ²⁴ superscript indicates commands that give an E24 (privilege violation) message if you are not logged in at the administrator level.
 - [Esc] = Escape key (hex 1B) (For web browsers, use W instead of [Esc].)
 - [X1] = Power receptacle (1 - 4)
 - [X3] = Greenwich Mean Time (GMT) offset value
(-12.00 to +14.00) represents the time difference in hours and minutes ($\pm hh:mm$) relative to Greenwich, England. The plus sign and leading zero are optional. For example, 5:30 = +05:30.)
 - [X5] = On or Off status
 - 0 = off or disable
 - 1 = on or enable
 - [X6] = Dirty memory status
 - 1 = RAM needs to be saved to flash memory.
 - 0 = RAM has been saved to flash (OK to power off or reset).
 - [X9] = Current threshold sense
 - 0 = clear or none
 - 1 = standby
 - 2 = full
 - (Full threshold must be set before standby.)
 - [X10] = Group number
 - 0 = none
 - 1 = yellow
 - 2 = green
 - 3 = red
 - (The exponent designates the port number. The color relates to setting groups via the front panel.)
 - [X11] = Version (typically listed to two decimal places, that is, *n.nn*)
 - [X12] = Unit name. The name of the PC1 is a text string of up to 24 characters drawn from the alphabet (A-Z), digits (0-9), and minus sign or hyphen (-). No blank or space characters are permitted as part of a name. No distinction is made between upper and lower case.
- NOTE:** The first character must be a letter. The last character must not be a minus sign or hyphen.
- [X13] = Local date and time format
Set format (*MM/DD/YY-HH:MM:SS*).
Example: 11/18/03-10:54:00.
Read format (day of week, day month year *HH:MM:SS*).
Example: Tue, 18 Nov 2011 18:19:33.
 - [X14] = IP address (*nnn.nnn.nnn.nnn*). Leading zeros in each of four fields are optional in setting values, and they are suppressed in returned values.
 - [X15] = E-mail domain name (for example: **extron.com**)
 - [X16] = Power-up delay between ports in 1/3-second increments. 1 - 255 permitted.
(Default is 3, which equals 1 second.)

- X17** = Time in tens of milliseconds to wait for the first character to arrive at a serial port before terminating (default=1=10 ms; max = 32767) the connection
- X18** = Hardware (MAC) address (xx-xx-xx-xx-xx-xx).
- X19** = Subnet mask (nnn.nnn.nnn.nnn). Leading zeros are optional in setting values in each of four fields, and they are suppressed in returned values.
- X20** = Time in tens of milliseconds to wait between character arriving at a serial port before terminating (default=2=20 ms; max = 32767) the connection
- X21** = Parameter to set either **L**ength of the message to receive or the **D**elimiter value.

- If the message is length delimited, use *nnL*, where *nn* is the length of the incoming message in bytes.
- If the message is character delimited, use *xxD*, where *xx* is the decimal ASCII value of the delimiting character.

X22 For verbose response mode:

- Ø = clear or none
- 1 = verbose mode
- 2 = tagged responses for queries
- 3 = verbose mode and tagged responses for queries
- Default = Ø

NOTE: If tagged responses are enabled, all read commands return the constant string plus the data, like setting the value does.

Example:

Command: `[Esc] CN ←`
 Response: `Ipn • X12`

- X23** = Priority status for receive timeout:
 - Ø = priority set to **Send Data String** command parameters
 - 1 = priority set to **Configure Receive Timeout** command parameters
- X25** = Baud rate: 300, 600, 1200, 1800, 2400, 3600, 4800, 7200, 9600, 14400, 19200, 28800, 38400, 57600, or 115200

X26 = Parity (Only the first letter is needed.)

- O = Odd
- E = Even
- N = None
- M = Mark
- S = Space

X27 = Data bits: 7 or 8

X28 = Stop bits: 1 or 2

X30 = Flow control (Only the first letter is needed.)

- S = Software
- N = None

X33 = Password (minimum length = 4 characters; maximum length = 12 characters. No special characters are allowed.

X34 = Daylight saving time (DST) is a 1-hour offset to reflect the time during which clocks are set one hour or more ahead of local standard time, to provide more daylight at the end of the working day. Supported for the U. S. and parts of Brazil and Europe.

Example: Time in California is GMT -8:00 from March to November and GMT -7:00 from November to March. DST should be turned off in Hawaii, American Samoa, Guam, Puerto Rico, the Virgin Islands, the eastern time zone portion of the state of Indiana, and the state of Arizona (excluding the Navajo Nation).

- Ø = off or ignore
- 1 = U. S.
- 2 = Europe
- 3 = Brazil

- X35** = Event number: range = 0-99
- X36** = Event buffer
 - 0 = receive
 - 1 = user (absolute)
 - 2 = User (relative)
 - 3 = NVRAM
- X37** = Memory location: range = 0 through *maximum buffer size*
- X38** = Event data size
 - b = bit
 - B = byte (8 bits)
 - S = short (16 bits)
 - L = long (32 bits)

NOTE: This parameter is case sensitive.

- X39** = Event data to write
- X41** = Reading password. Responds with four asterisks (****) in place of the password, if a password exists. Responds with an empty space if no password exists.
- X42** = Contact input setting
 - 0 = off (open)
 - 1 = on (closed)
- X44** = Number of bytes to read: range = 1-127
- X45** = E-mail event number (1-64)
- X46** = E-mail recipient address (for example, JDoe@exttron.com) for the person to whom messages will be sent.
- X47** = **For the CR command:** Name (numeral) of e-mail file to be sent; for example: 1.eml, 2.eml, ... 64.eml. The first line of the file is the subject; the rest is the message body.
For the SM command: Numeric name for the e-mail file to be sent. The file must be named *n.eml* (*n* can be 0-999); for example, 1.eml, 2.eml, ... 999.eml.
 This command overrides the file specified in the CR command. If the value is 0 or a parameter is missing, the file specified for the mailbox in the CR command is sent instead.

NOTE: The SM command sends a default e-mail message if the **X47** file is not found.

- X49** = Default name: a combination of the model name and the last three pairs of the interface MAC address (for example: IPL-T-PC1-00-02-3D).
- X52** = Connection security level
 - 11 = user
 - 12 = administrator
- X54** = ASCII digits representing the numeric value of the data element read from the event buffer (leading zeros are suppressed).
- X57** = IR file number: 0-99. The response is returned with leading zeros.
- X58** = IR function number
 - 0 = return all data
 - 1-127 = functions that can be played or can return information (text). The response is returned with leading zeros.
 - 129 = manufacturer
 - 130 = model
 - 131 = class
 - 132 = remote
 - 133 = creation date
 - 134 = comments
 - 137 = user file name (descriptive name given to the file by the user)

NOTE: 0 and numbers greater than 127 can return information only.

- X59** = IR Playback mode
 - 0 = play once
 - 1 = play continuously
 Response is returned with leading zeros.
 To stop mode 1 playback, send the IR command again with mode 0 selected.
- X64** = Time in seconds to keep sending the broadcast message (0-255, default = 10)
- X69** = (Ethernet only) Number of seconds before timeout on IP connections (min. = 1, max. = 6500, and default = 30 = 300 seconds).
 If no data is received during the timeout period, the Ethernet connection is closed. Each step is 10 seconds. The response is returned with leading zeros.
- X70** = The number (as an optional parameter) that is inserted into the e-mail message if the .eml file has an embedded command (with no parameters).
- X71** = Hardware (MAC) address: the four most significant hex nibbles converted into a single 16-bit decimal number.
- X72** = Hardware (MAC) address: the eight least significant hex nibbles converted into a single 32-bit decimal number.

NOTE: This can be up to 10 digits.

- X73** = E-mail account user name. Maximum length is 31 characters. This parameter is optional; commas cannot be used as placeholders for it. If it is omitted from an issued command, any existing user account name is cleared.
- X74** = E-mail account password. Maximum length is 31 characters. This parameter is optional; commas cannot be used as placeholders for it. If it is omitted from an issued command, any existing user account password is cleared.
- X711** = Days of the week
 - 1 = Sunday
 - 2 = Monday
 - 3 = Tuesday
 - 4 = Wednesday
 - 5 = Thursday
 - 6 = Friday
 - 7 = Saturday
- X712** = Time in minutes (0-1440)
 - 0 = 12 am (midnight)
 - 1440 = clear schedule

Example: 1439 = 11:59

Use the following formula (in 24-hour time format): **(hour x 60) + minutes = time in minutes**

- X713** = Power receptacle name (12 characters maximum)

Command and Response Table for SIS Commands

Command	ASCII (Telnet) (Host to Switcher)	URL Encoded (web) (Host to Switcher)	Response (Switcher to Host)
Power Receptacle Control / Current Sense			
Turn receptacle power on	<code>[Esc] 1*1PC←</code>	<code>W 1 %2A 1PC|</code>	<code>Cpn 01•Ppc1↵</code>
Turn receptacle power off	<code>[Esc] 1*0PC←</code>	<code>W 1 %2A 0PC|</code>	<code>Cpn 01•Ppc0↵</code>
View receptacle power status	<code>[Esc] 1PC←</code>	<code>W 1PC|</code>	<code>[X5] ↵</code>
Set Executive mode on	<code>1X</code>	<code>1X</code>	<code>Exe1↵</code>
Set Executive mode off	<code>0X</code>	<code>0X</code>	<code>Exe0↵</code>
View Executive mode	<code>X</code>	<code>X</code>	<code>[X5] ↵</code>
Power Receptacle Naming			
Set receptacle name ²⁴	<code>[Esc] 1, [X713] NO←</code>	<code>W 1 %2C [X713] NO|</code>	<code>Nmo1, [X713] ↵</code>
Set receptacle name to factory default ²⁴	<code>[Esc] 1, • NO←</code>	<code>W 1 %2C %20 NO|</code>	<code>Nmo1, [X713] ↵</code>
View receptacle name	<code>[Esc] 1NO ←</code>	<code>W 1NO|</code>	<code>[X713] ↵</code>
Power Receptacle Scheduling			
Set scheduling ²⁴	<code>[Esc] 1*[X711]*[X5]*[X712] SS←</code>	<code>W 1 %2A [X711] %2A [X5] %2A [X712] SS</code>	<code>Set 1*[X711]*[X5]*[X712] ↵</code>
View scheduling	<code>[Esc] 1*[X711]*[X5] SS←</code>	<code>W 1 %2A [X711] %2A [X5] SS|</code>	<code>[X712] ↵</code>
Front Panel Lockout Scheduling (Executive Mode)			
Set scheduling ²⁴	<code>[Esc] 2*[X711]*[X5]*[X712] SS←</code>	<code>W 2 %2A [X711] %2A [X5] %2A [X712] SS</code>	<code>Set 2*[X711]*[X5]*[X712] ↵</code>
View scheduling	<code>[Esc] 2*[X711]*[X5] SS←</code>	<code>W 2 %2A [X711] %2A [X5] SS|</code>	<code>[X712] ↵</code>
Ethernet Data Port Commands			
Set current connected port timeout	<code>[Esc] 0*[X69] TC←</code>	<code>W 0 %2A [X69] TC|</code>	<code>Pti0*[X69] ↵</code>
View current connected port timeout	<code>[Esc] 0TC←</code>	<code>W 0TC|</code>	<code>[X69] ↵</code>
Set global IP port timeout	<code>[Esc] 1*[X69] TC←</code>	<code>W 1 %2A [X69] TC|</code>	<code>Pti1*[X69]</code>
View global IP port timeout	<code>[Esc] 1TC←</code>	<code>W 1TC|</code>	<code>[X69] ↵</code>
Information Requests			
<p>NOTE: An asterisk (*) after a version number indicates the version that is currently running. Question marks (? . ??) indicate that only the factory firmware version is loaded. A caret (^) indicates the firmware version that should be running; however, a mode 1 reset was executed and the factory default firmware version is currently loaded. An exclamation point (!) indicates corrupted firmware.</p>			
Query firmware version	<code>Q</code>	<code>Q</code>	<code>[X11] ↵</code> With tagged response – verbose modes 2 and 3: <code>Ver01*[X11] ↵</code>
Query verbose version information	<code>0Q</code>	<code>0Q</code>	<i>Sum of responses from 2Q, 3Q, and 4Q ↵</i> With tagged response – verbose modes 2 and 3: <code>Ver00*[X11] sum of responses from 2Q, 3Q, and 4Q ↵</code>
Query firmware information	<code>1Q</code>	<code>1Q</code>	<code>[X11] ↵</code> With tagged response – verbose modes 2 and 3: <code>Ver01*[X11] ↵</code>

Command	ASCII (Telnet) (Host to Switcher)	URL Encoded (web) (Host to Switcher)	Response (Switcher to Host)
Information requests (continued)			
Query bootstrap version	2Q	2Q	<p>[x11] ↵</p> <p>With tagged response – verbose modes 2 and 3: Ver02*[x11] ↵</p>
Query factory firmware version	3Q	3Q	<p>[x11] plus (web version – model – UL – date and time) ↵</p> <p>With tagged response – verbose modes 2 and 3: Ver03*[x11] plus (web version – model – UL – date and time) ↵</p>
Query updated firmware version	4Q	4Q	<p>[x11] plus (web version – model – UL – date and time) ↵</p> <p>With tagged response – verbose modes 2 and 3: Ver04*[x11] plus (web version – model – UL – date and time) ↵</p>
Request interface part number	N	N	<p>60-544-10 or 60-544-20 ↵</p> <p>With tagged response – verbose modes 2 and 3: Pno 60-544-10 or 60-544-20 ↵</p>
Request model name	1I	1I	<p>IPL T PC1 or IPL T PC1i ↵</p> <p>With tagged response – verbose modes 2 and 3: inf01*IPL T PC1 ↵</p>
Request model description	2I	2I	<p><i>Brief product description</i> ↵</p>
<i>Example</i>	2I	2I	<p>One 220 VAC Switched AC Receptacle, One Bi-Directional Serial Port [RS-232], One IR Port, One Contact Input Port ↵</p> <p>With tagged response – verbose modes 2 and 3: inf02*<i>brief product description</i> ↵</p>

Command	ASCII (Telnet) (Host to Switcher)	URL Encoded (web) (Host to Switcher)	Response (Switcher to Host)
Information requests (continued)			
Request system memory usage	3I	3I	Number of bytes used out of the number of total kbytes↵ With tagged response – verbose modes 2 and 3: inf03*Number of bytes used out of number of kbytes ↵
Request user memory usage	4I	4I	Number of bytes used out of the number of total kbytes↵ With tagged response – verbose modes 2 and 3: inf04*Number of bytes used out of number of kbytes ↵
E-mail Commands			
Configure e-mail events (mailbox) ²⁴ Example:	Esc [X45], [X46], [X47] CR↵ Esc 5, jdoe@extron.com, 7.emlCR↵	W [X45] %2C [X46] %2C [X47] CR |	Ipr [X45], [X46], [X47] ↵ W5%2Cjdoe%40extron%2Ecom%2C7%2EemlCR | Ipr5, jdoe@extron.com, 7.eml↵
View e-mail events (mailbox)	Esc [X45] CR↵	W [X45] CR |	[X46], [X47] ↵
Send e-mail events (file named in mailbox) ²⁴	Esc [X45] SM↵	W [X45] SM |	Em1 [X46] ↵
Send e-mail using a different file ²⁴	Esc [X45], [X70], [X47] SM↵	W [X45] %2C [X70] %2C [X47] SM |	Em1 [X46] ↵
Web Browser-specific Commands			
Read response from last URL cmd	Esc UB↵	W UB |	Response from command↵
Mail Server Setup Commands			
Set mail server IP, unit domain name, and SMTP authentication ²⁴	Esc [X14], [X15], [X73], [X74] CM↵	W [X14] %2C [X15] %2C [X73] %2C [X74] CM |	Ipm•[X14], [X15], [X73], [X74] ↵
View mail server IP, unit domain name, and SMTP authentication ²⁴	Esc CM↵	W CM |	[X14], [X15], [X73], [X74] ↵
Set mail server IP and unit domain name ²⁴	Esc [X14], [X15] CM↵	W [X14] %2C [X15] CM |	Ipm•[X14], [X15] ↵
View mail server IP and unit domain name	Esc CM↵	W CM |	[X14], [X15] ↵
IP Setup Commands			
Set the unit name ²⁴	Esc [X12] CN↵	W [X12] CN |	Ipn•[X12] ↵
Set unit name to factory default ²⁴	Esc •CN↵	W %20 CN |	Ipn•[X49] ↵
View unit name	Esc CN↵	W CN |	[X12] ↵
Set date and time ²⁴	Esc [X13] CT↵	W [X13] CT |	Ipt•[X13] ↵ Example: 11/16/11-10:54:00 ↵
View date and time	Esc CT↵	W CT |	[X13] ↵ Example: Tues, 16 NOV 2011 10:10:54:00 ↵

Command	ASCII (Telnet) (Host to Switcher)	URL Encoded (web) (Host to Switcher)	Response (Switcher to Host)
IP Setup Commands (continued)			
Set GMT offset ²⁴	[Esc] [X3] CZ←	W [X3] CZ |	Ipz [X3] ←
View GMT offset	[Esc] CZ←	W CZ |	[X3] ←
Set daylight savings time ²⁴	[Esc] [X34] CX←	W [X34] CX |	Ipx [X34] ←
View daylight savings time	[Esc] CX←	W CX |	[X34] ←
Set DHCP on ²⁴	[Esc] 1DH←	W 1DH |	Idh1 ←
Set DHCP off ²⁴	[Esc] ØDH←	W ØDH |	IdhØ ←
NOTE: Changing DHCP from On to Off resets the IP address to the factory default (192.168.254.254).			
View DHCP mode	[Esc] DH←	W DH |	[X5] ←
Set IP address ²⁴	[Esc] [X14] CI←	W [X14] CI |	Ipi• [X14] ←
View IP address	[Esc] CI←	W CI |	[X14] ←
View hardware (MAC) address	[Esc] CH←	W CH |	[X18] ←
With tagged response – verbose modes 2 and 3:			
Set subnet mask ²⁴	[Esc] [X19] CS←	W [X19] CS |	Ips• [X19] ←
View subnet mask	[Esc] CS←	W CS |	[X19] ←
Set gateway IP address ²⁴	[Esc] [X14] CG←	W [X14] CG |	Ipg• [X14] ←
View gateway IP address	[Esc] CG←	W CG |	[X14] ←
Set verbose mode ²⁴	[Esc] [X22] CV←	W [X22] CV |	Vrb [X22] ←
NOTE: The IPL T PC1 can send out unsolicited information (such as notice of a power level change). This is called a <i>verbose</i> (wordy) relationship between the interface and a connected device. When the IPL T PC1 is connected to the computer via Ethernet, verbose mode is disabled (by default) in order to reduce the amount of communication traffic on the network. If you want to use the verbose mode with the PC1 connected via Ethernet, you must set verbose mode to On each time you reconnect the computer to the network.			
View verbose mode status	[Esc] CV←	W CV |	[X22] ←
Set broadcast mode	[Esc] [X64] , [X14] EB←	W [X64] %2C [X14] EB |	Bmd
Set broadcast mode to default address	[Esc] [X64] EB←	W [X64] EB |	Bmd [X64] , [X14] ←
Clear broadcast mode	[Esc] ØEB←	W ØEB |	Bmd ØØØ, [X14] ←
View broadcast mode	[Esc] EB←	W EB |	[X64] , [X14] ←
Set broadcast port and MAC address	[Esc] <i>port number</i> * [X71] * [X72] PB←	W <i>port number</i> * [X71] * [X72] PB |	Bpt <i>port number</i> * [X18] ←
View broadcast port and MAC address	[Esc] PB←	W PB |	<i>port number</i> * [X18] ←
NOTE: <i>Port number</i> is the UDP outgoing port. [X71] * [X72] is the MAC address for UDP unicast transmissions.			
Get connection listing	[Esc] CC←	W CC |	<i>Number of connections</i> ←
With tagged response – verbose modes 2 and 3:			
			Icc <i>Number of connections</i> ←

Command	ASCII (Telnet) (Host to Switcher)	URL Encoded (web) (Host to Switcher)	Response (Switcher to Host)
Password and Security Settings			
Set administrator password ²⁴	Esc X33 CA←	W X33 CA|	Ipa•X41←
Clear administrator password ²⁴	Esc •CA←	W %20 CA|	Ipa•←
NOTE: A user password cannot be assigned if an administrator password does not exist. If the administrator password is cleared (removed), the user password is also removed.			
View administrator password ²⁴	Esc CA←	W CA|	X41←
Set user password ^{14, 24}	Esc X33 CU←	W X33 CU|	Ipu•X41←
Clear user password ²⁴	Esc •CU←	W %20 CU|	Ipu•←
View user password ²⁴	Esc CU←	W CU|	X41←
Query session security level	Esc CK←	W CK|	X52← With tagged response – verbose modes 2 and 3: Pv1 X52←
NOTES:			
<ul style="list-style-type: none"> The ←Password prompt requires a password (administrator level or user level), followed by a carriage return. The password prompt appears only if there is a password defined on the unit. The copyright information displayed upon connection to the IP Link product via TCP/IP or Telnet is followed by the password prompt. The ←Password prompt is repeated if a correct administrator or user password is not entered. If a correct administrator or user password is entered, the unit responds with ←Login Administrator← or ←Login User←, depending on the password that was entered. If the administrator and user passwords are the same, it defaults to administrator privileges. 			
Remapping Port Designations			
NOTE: Duplicate port number assignments are not permitted; that is, Telnet and web cannot be the same. Entering duplicate port assignments results in an E13 (invalid parameter) error message.			
Set Telnet port map ²⁴	Esc port number MT←	W port number MT|	Pmt port number←
Reset Telnet port map ²⁴	Esc 23MT←	W 23MT|	Pmt 00023←
Disable Telnet port map ²⁴	Esc 0MT←	W 0MT|	Pmt 00000←
View Telnet port map	Esc MT←	W MT|	port number←
Set web port map ²⁴	Esc port number MH←	W port number MH|	Pmh port number←
Reset web port map ²⁴	Esc 80MH←	W 80MH|	Pmh 00080←
Disable web port map ²⁴	Esc 0MH←	W 0MH|	Pmh 00000←
View web port map	Esc MH←	W MH|	port number←
Set Direct Access port map ²⁴	Esc 2001MD←	W 2001MK|	Pmd 02001←
Disable Direct Access port map ²⁴	Esc 0MD←	W MD|	W 0MD|
View Direct Access port map	Esc MD←	WMD|	port number←
NOTE: Remapping a port number (other than to reset it to the default 80 or 23, or to disable it by setting it to 0) must be to port number 1024 or higher.			

Command	ASCII (Telnet) (Host to Switcher)	URL Encoded (web) (Host to Switcher)	Response (Switcher to Host)
Directory Commands			
Change or create a directory	<code>[Esc] path/directory/CJ←</code>	<code>W path/directory/CJ|</code>	<code>Dir•path/directory/←</code>
NOTE: A directory does not truly exist until a file has been copied into the path.			
Move back to root directory	<code>[Esc] /CJ←</code>	<code>W %2F CJ|</code>	<code>Dir•/←</code>
Move up one directory	<code>[Esc] ..CJ←</code>	<code>W %2E %2E CJ|</code>	<code>Dir•path/directory/←</code>
View current directory	<code>[Esc] CJ←</code>	<code>W CJ|</code>	<code>path/directory/←</code>
File Commands			
Erase user-supplied web page or file ^{24, 28}	<code>[Esc] filename EF←</code>	<code>W filename EF|</code>	<code>Del•filename←</code>
Erase current directory and its files ^{24, 28}	<code>[Esc] /EF←</code>	<code>W %2F EF|</code>	<code>Ddl←</code>
Erase current directory and its subdirectories ^{24, 28}	<code>[Esc] //EF←</code>	<code>W %2F %2F EF|</code>	<code>Ddl←</code>
List files from current directory	<code>[Esc] DF←</code>	<code>W DF|</code>	(See below.)
		Telnet text responses:	
		<code>filename x • date/time • length←</code>	
		<code>filename x • date/time • length←</code>	
		<code>filename x • date/time • length←</code>	
		<code>...</code>	
		<code>space_remaining • Bytes Left←</code>	
		<code>←</code>	
		Web responses — HTML sample code:	
		<code>Var file – new Array ();</code>	
		<code>File [1] = 'filename1, date1, filesize1';</code>	
		<code>File [2] = 'filename2, date2, filesize2';</code>	
		<code>...</code>	
		<code>File [n] = 'filename n, date n, filesize n';</code>	
		<code>File [n+1] = 'space remaining, Bytes left'</code>	

Command	ASCII (Telnet) (Host to Switcher)	URL Encoded (web) (Host to Switcher)	Response (Switcher to Host)
File Commands (continued)			
List files from current directory and below	<code>Esc LF←</code> <code>length←</code> <code>length←</code> <code>length←</code>	<code>W LF|</code> Telnet text responses: <code>path/directory/filename x • date/time •</code> <code>path/directory/filename x • date/time •</code> <code>path/directory/filename x • date/time •</code> <code>...</code> <code>space_remaining • Bytes Left←</code> web responses — HTML sample code: <code>Var file – new Array ();</code> <code>File [1] = 'filename1, date1, filesize1';</code> <code>File [2] = 'filename2, date2, filesize2';</code> <code>...</code> <code>File [n] = 'filename n, date n, filesize n';</code> <code>File [n+1] = 'space remaining, Bytes left'</code>	(See below.)
NOTE: The response to this command is the same as for the “List files from current directory” command (DF), except that <i>path/directory</i> precedes filenames for files from subdirectories below the current directory.			
Stream Files via Port 80			
Load file to user flash memory ^{24,28}	Use a POST on port 80 followed by the delimited data to be written to the flash file memory.		
Retrieve files from user flash memory ^{24,28}	Send a page GET on port 80 followed by WSF|		<i>Raw unprocessed data in file</i>
<i>Example:</i>	<code>http://192.168.254.254/mypage.html?cmd=WSF</code>		
Stream Files via Telnet			
Load file to user flash memory ^{24,28}	<code>Esc + UF filesize, filename←</code>		<i>Raw unprocessed data in file up to file size</i> <code>Up1←</code>
Retrieve file from user flash memory ^{24,28}	<code>Esc filename SF←</code>	<code>1B filename SF0D</code>	Four bytes of <i>file size</i> + <i>raw unprocessed data in file</i>
Event Control			
Read event buffer memory ²⁷	<code>Esc [X35], [X36], [X37] [X38] E←</code>	<code>W [X35] %2C [X36] %2C [X37] [X38] E←</code>	<code>[X54] ←</code>
Write event buffer memory ^{24,27}	<code>Esc [X35], [X36], [X37], [X39] [X38] E←</code>	<code>W [X35] %2C [X36] %2C [X37] %2C [X39] [X38] E←</code>	<code>Evt [X35], [X36], [X37], [X39] ←</code>
NOTE: The response to the Write Event command is padded with leading zeros for [X35] and [X37]. [X35] is 5 digits and [X37] is 10 digits.			
Read string from event buffer memory ²⁷	<code>Esc [X35], [X36], [X37], [X44] FE←</code>	<code>W [X35] %2C [X36] %2C [X37] %2C [X44] FE←</code>	<i>string ←</i>

Command	ASCII (Telnet) (Host to Switcher)	URL Encoded (web) (Host to Switcher)	Response (Switcher to Host)
Event Control (continued)			
Write string to event buffer memory ^{24,27}	<code>[Esc] string*[x35], [x36], [x37] FE ←</code>		
		<code>W [x39] %2A [x35] %2C [x36] %2C [x37] FE ←</code>	
			<code>Evt [x35], [x36], [x37], string ←</code>
<p>NOTES:</p> <ul style="list-style-type: none"> • F must be capitalized in order for strings to be read and written to event buffer memory. • The response to the Write Event command is padded with leading zeros for <code>[x35]</code> and <code>[x37]</code>. <code>[x35]</code> is 5 digits and <code>[x37]</code> is 10 digits. • The Write String command requires a string beginning with <code>[Esc]</code>. Strings returned by the device (read or write response) are binary data (without an <code>[Esc]</code>). 			
Start events ^{24,27}	<code>[Esc] 1AE ←</code>	<code>W 1AE |</code>	<code>Ego ←</code>
Stop events ^{24,27}	<code>[Esc] 0AE ←</code>	<code>W 0AE |</code>	<code>Est ←</code>
Query number of events running	<code>[Esc] AE ←</code>	<code>W AE |</code>	<code>nnnnn ←</code> (5-digit number) With tagged response – verbose modes 2 and 3: <code>Enm nnnnn ←</code> (5-digit number)
Reset (Zap) and Erase Commands			
<p>NOTE: None of the following zap commands (ZFFF, ZXXX, ZY, or ZQQQ) reset the AC power receptacle. Power remains in its current state.</p>			
Erase all files from user flash memory ²⁴	<code>[Esc] ZFFF ←</code>	<code>W ZFFF |</code>	<code>Zpf ←</code>
Reset all device settings to factory default ²⁴	<code>[Esc] ZXXX ←</code>	<code>W ZXXX |</code>	<code>Zpx ←</code>
<p>NOTE: This reset is product-dependent. It resets receptacle name and lock mode to Off. It does not reset IP settings such as IP address, subnet mask, gateway IP address, and IP security level table; and it does not remove the user file system.</p>			
Absolute system reset; retain IP address	<code>[Esc] ZY ←</code>	<code>W ZY |</code>	<code>Zpy ←</code>
<p>NOTE: This reset is the same as ZQQQ (below), except that it excludes IP settings such as IP address, subnet mask, gateway IP address, unit name, DHCP, and port mapping (Telnet, web, and Direct Access) in order to preserve communication with the device. It also erases the user file system. This reset is recommended to be used after a firmware update.</p>			
Absolute system reset ²⁴	<code>[Esc] ZQQQ ←</code>	<code>W ZQQQ |</code>	<code>Zpq ←</code>
<p>NOTE: This is a mode 5 reset (see “Resetting” in the “Front Panel Features and Operation” section). It resets all device settings to the factory defaults; however, the firmware version remains the same.</p>			

Reference Material

Specifications

AC control interface

Connectors	
IPL T PC1	1 female USA/Edison power connector
IPL T PC1i	1 female IEC power connector
Voltage	
IPL T PC1	120 VAC, 50-60 Hz
IPL T PC1i	220 VAC, 50-60 Hz
Maximum AC load	
IPL T PC1	12 A, 1440 watts at 120 VAC
IPL T PC1i	10 A, 2200 watts at 220 VAC

Serial control interface

Serial control port.....	(1) RS-232 only, 3.5 mm captive screw connector, 4 pole
Baud rate and protocol.....	115200 to 300 baud (9600 baud = default) ; 8 (default) or 7 data bits; 1 (default) or 2 stop bits; no parity (default), or even or odd parity
Serial control pin configuration.....	1 = Tx, 2 = Rx, 3 = GND, 4 = +5 VDC

Ethernet control interface

Connector.....	1 female RJ-45 connector
Data rate.....	10/100Base-T, half/full duplex with autodetect
Protocols.....	ARP, ICMP (ping), IP, TCP, UDP, DHCP, HTTP, SMTP, Telnet
Default settings.....	Link speed and duplex level = autodetected IP address = 192.168.254.254 Subnet mask = 255.255.0.0 Gateway = 0.0.0.0 DHCP = off
Web server.....	Up to 200 simultaneous sessions 7.25 MB nonvolatile user memory
Program control.....	Extron Simple Instruction Set (SIS™)
Global Viewer requirements.....	Microsoft® Internet Explorer ver. 6 or higher

Contact closure interface— input only

Quantity/type	1 contact closure input
Contact input control connector.....	(1) 3.5 mm captive screw connector, 4 pole (shared with IR output port)
Contact closure (input only)	
Input voltage range	0 to 5 VDC, clamped at +5.1 V
Input impedance.....	10k ohms
Threshold.....	1.6 VDC
Pin configuration.....	1 = contact input, 2 = GND

IR control interface

IR control port	(1) 3.5 mm captive screw connector, 4 pole (shared with contact closure input port)
Pin configuration.....	3 = S (IR signal output), 4 = GND
IR output carrier frequency	30 kHz to 1 MHz

General

Power input	Internal 100-240 VAC, 50-60 Hz 5 watts
IPL T PC1	12 A (max.)
IPL T PC1i	10 A (max.)
Temperature/humidity	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Cooling	Convection, no vents
Mounting	
Rack mount	Yes, with optional 1U rack shelf
Furniture mount	Yes, with optional under desk mounting kit
Enclosure type	Metal
Enclosure dimensions	1.7" H x 4.3" W x 6.0" D (1U high, quarter rack wide) (4.3 cm H x 10.9 cm W x 15.2 cm D) (Depth excludes connectors.)
Product weight.....	1.0 lbs (0.5 kg)
Shipping weight.....	3 lbs (2 kg)
Vibration	ISTA 1A in carton (International Safe Transit Association)
Regulatory compliance	
Safety	
IPL T PC1.....	CE, c-UL, UL
IPL T PC1i.....	CE
EMI/EMC	CE, C-tick, FCC Class A, ICES, VCCI
MTBF	30,000 hours
Warranty.....	3 years parts and labor

- NOTES:**
- All nominal levels are at $\pm 10\%$.
 - Specifications are subject to change without notice.

Part Numbers and Accessories

Included Parts

These items are included in each order for an IPL T PC1 or IPL T PC1i interface:

Included Parts	Part Number
IPL T PC1	60-544-10
IPL T PC1i	60-544-20
Rubber feet (self-adhesive) (4)	
2-pin female captive screw terminal (2)	
4-pin female captive screw terminal (1)	
18 AWG IEC power cord (U. S. shipments only)	
Tweezer (small screwdriver)	
<i>IPL T PC1 Setup Guide</i>	
IPL T PC1 Software CD-ROM	

Optional Accessories

These items are optional for the IPL T PC1 and the IPL T PC1i:

Optional Accessories	Part Number
RSU 129 Universal Rack Shelf Kit (9.5 inches deep)	60-190-01
RSB 129 Basic Rack Shelf (9.5 inches deep)	60-604-02
RSU 126 Universal Rack Shelf Kit (6 inches deep)	60-190-10
RSB 126 Basic Rack Shelf (6 inches deep)	60-604-11
MBU 125 1/2 Rack Width Low-Profile Mount Kit	70-077-01

Mounting the IPL T PC1 Interface

The IPL T PC1 can be set on a table, mounted on a rack shelf, or mounted under furniture such as a desk, podium, or tabletop.

Tabletop Use

Four self-adhesive rubber feet are included with the PC1. For tabletop use, attach one foot at each corner of the bottom side of the unit, and place the PC1 in the desired location.

Rack Mounting

Rack mount the interface, if desired, using one of the optional 19 inches wide rack shelves (see "[Optional Accessories](#)," above, for part numbers).

UL requirements for rack mounting

The following Underwriters Laboratories (UL) requirements pertain to the installation of the interface into a rack.

- **Elevated operating ambient temperature** — If the equipment is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, consider installing the equipment in an environment compatible with the maximum ambient temperature (TMA) specified by the manufacturer.

- **Reduced air flow** — Install the equipment in the rack so that the amount of air flow required for safe operation of the equipment is not compromised.
- **Mechanical loading** — Mount the equipment in the rack so that uneven mechanical loading does not create a hazardous condition.
- **Circuit overloading** — When connecting the equipment to the supply circuit, consider the effect that circuit overloading might have on overcurrent protection and supply wiring. Consider equipment nameplate ratings when addressing this concern.
- **Reliable earthing (grounding)** — Maintain reliable grounding of rack-mounted equipment. Pay particular attention to supply connections other than direct connections to the branch circuit (such as the use of power strips).

Rack mounting procedure

To mount the PC1 on a rack shelf:

1. If rubber feet have been installed on the bottom of the unit, remove them.
2. Mount the PC1 on the rack shelf, using two 4-40 x 3/16 inch screws in opposite (diagonal) corners of the unit to secure it to the shelf.
3. Attach a blank panel or other units to the rack shelf.

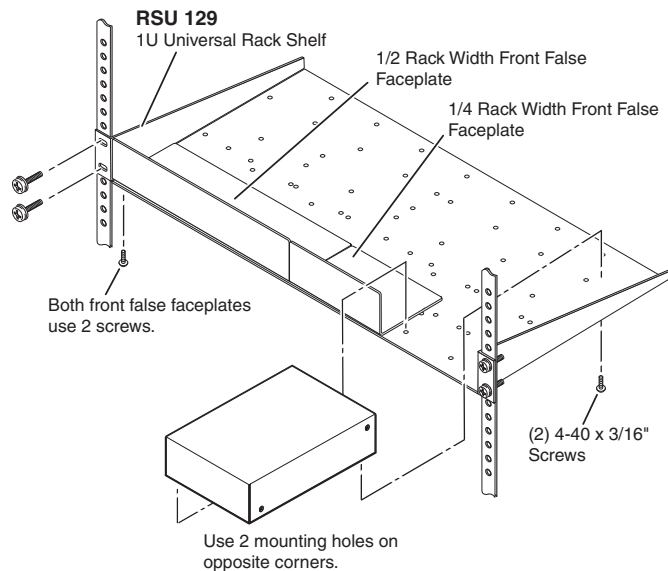


Figure 43. Mounting the IPL T PC1 on an RSU 129 Universal Rack Shelf

4. Insert the shelf into the rack, aligning the holes in the shelf with those in the rack.
5. Secure the shelf to the rack using the supplied machine screws. This shelf can be mounted in the front or in the rear of the rack.

Under-desk Mounting

The PC1 can also be mounted under furniture, such as a table or podium surface, using the optional under-desk mounting kit MBU 125 (part number **70-077-01**).

1. If rubber feet were previously installed on the bottom of the unit, remove them.
2. Attach the mounting brackets to the unit with the provided machine screws.
3. Insert #8 wood screws into the four pilot holes. Tighten each screw into the mounting surface until slightly less than 1/4 inch of the screw protrudes.
4. Align the mounting screws with the slots in the brackets, and place the PC1 against the surface with the screws through the bracket slots.

5. Slide the unit slightly forward or back, then tighten all four screws to secure it in place.

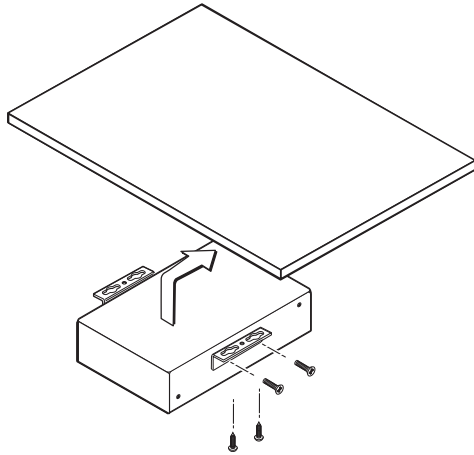


Figure 44. Mounting the IPL T PC1 Under Furniture

Glossary

Numbers and A

- 10/100Base-T** Ethernet that uses unshielded twisted pair (UTP - Cat 5, and so forth) cable, in which the amount of data transmitted between two points in a given amount of time is equal to either 10 Mbps or 100 Mbps
- ARP** (**Address Resolution Protocol**) A protocol that assigns an IP address to a device based on the device's MAC or physical machine address
- AWG** (**American Wire Gauge**) A standard measurement for wire conductor diameter

C

- Condition** A state for which the PC1 is being monitored. When a monitored condition is met, the PC1 may sound an alarm or send an e-mail message, depending on how the system has been configured (via the front panel or the Monitor web page). Examples of conditions that can be monitored include Receptacle Off, Any Change, or Reference: None.
- Contact closure** An encapsulated switch containing two metal wires that serve as the contact points. When these contact points meet, a complete circuit is created (for example, input to ground on the IPL T PC1).
- Custom web page** Any file that can be loaded into an IPL interface and served by the IPL internal web server. A custom web page can provide control of devices attached to the IPL without use of Global Configurator (GC) or GlobalViewer (GV). This is true with or without an accompanying event script. Any number and size of graphics can be used, but if they are too large to fit on the IPL T PC1 interface, you can write your web page so that they can be served from another web server. If you install Microsoft Internet Information Services (IIS) on your desktop, you can serve any page on its hard disk. The IPL device functions like a little computer with a web server—you can use it for various web tasks.

D

- DataViewer** Software that allows you to send ASCII or hexadecimal commands to an IPL device interface and view the device responses. You can configure the data display in several ways, including selecting the text color, text font, and whether to view commands and responses in separate panes within the DataViewer window. The software can save the command and response data as a text file (.txt) or as an HTML file that preserves some of the display formatting.
- Default web pages** A set of preloaded web pages that can be accessed via a standard web browser. These pages are a primary means of initial setup for IP Link products and a way to change their settings. Web browsers such as Internet Explorer (version 5.5 or higher) can be used, but if using Internet Explorer, you must also have Microsoft Script (version 5.6 or higher).

DHCP (**Dynamic Host Configuration Protocol**) is a standardized communications protocol that enables network administrators to locally and automatically manage the assignment of IP addresses in an organization's network.

Driver This is a Global Configurator (GC) compatible package. It includes the event script that controls devices.

E

Edison power receptacle

A standard power connector. The rear panel of the IPL T PC1, U. S. version, has a female Edison receptacle (NEMA connector) into which a device is plugged in order to be powered on and off by the PC1.

Ethernet

A network protocol that uses MAC addresses instead of IP addresses to exchange data between computers. Using ARP (see **ARP** on the previous page) with TCP/IP support, Ethernet devices can be connected to the Internet. An Ethernet LAN typically uses unshielded twisted pair (UTP) wires. Ethernet systems currently provide transmission speeds of 10 Mbps or 100 Mbps.

Event script

A program that runs on an IPL interface, and issues queries and commands to the attached devices. Event scripts are written in the "Extron C" language (as .sc files), and are compiled into event scripts using Global Configurator. The results are compiled as .evt files and loaded onto the IPL interface. The Extron C language is similar to ANSI C, with some differences. As long as event scripts are turned on, they run on the device continuously.

Executive mode

This is an operating mode in which the IPL T PC1 does not accept commands from the front panel. Also called "front panel security lockout."

F, G

Firmware

Embedded software that is stored permanently in read-only memory (ROM) and contains basic instructions for how the PC1 operates. Firmware upgrades are periodically made available for uploading via the IPL T PC1 Firmware Upgrade web page.

Gateway

A device that connects networks that have different, incompatible communication protocols. The default gateway is the routing device used to forward all traffic that is not addressed to a station within the local subnet.

Global Configurator (GC)

A windows program that, based on user input, creates the GlobalViewer (GV) pages. Global Configurator requests system information, such as the devices you have and your current list of IP addresses. With this information, GC creates a GV page for your specific devices. GC also compiles the event scripts and loads the GV pages and event scripts onto the device. When using GC, you must specify the port number for each device (for attached devices to be controlled, they must be on that port). In order for multiple IP Link devices to appear in the same GV page, all of the devices must be configured at the same time using GC.

GlobalViewer (GV) A set of web pages (HTML, XML, JS) and graphics that are loaded into the memory of an IPL T PC 1 interface. These pages provide an interface for control of devices attached to the IPL T PC 1 interface. They communicate with the event scripts running on the device, and the event scripts issue the commands and queries. This communication between the web pages and the event scripts occurs through predetermined memory locations in the IPL interface. GV is initially created by Global Configurator (GC); however, it is possible to edit the GV HTML, XML, and JavaScript files outside of GC. This edited GV is called "hard-coded" or manually generated GlobalViewer.

H, I, M

HTTP (**HyperText Transfer Protocol**) A web protocol, based on TCP/IP, that is used to fetch HyperText objects from remote web pages

IEC power receptacle

A standard power connector. The IPL T PC 1i rear panel has a female IEC receptacle into which a device is plugged in order to be powered on and off by the PC 1i.

IP (**Internet Protocol**) The protocol or standard used to send information from one computer to another on the Internet

IP address A unique, 32-bit, binary number (up to a 12 digit decimal number, *nnn.nnn.nnn.nnn*) that identifies each sender and each receiver of information connected to a LAN, WAN, or the Internet. IP addresses can be static (see **Static IP**) or dynamic (see **DHCP**).

IP net mask/subnet mask

A 32-bit binary number (12 digit decimal number, *nnn.nnn.nnn.nnn*) used on subnets (smaller, local networks) to help routers determine which network traffic gets routed internally (within the subnetwork) to local computers and which network traffic goes out to the rest of the network or the Internet

MAC (**Media Access Code**) A unique hardware number given to devices that connect to the Internet. When your computer or networking device (router, hub, interface, and so forth) is connected to a LAN or the Internet, a table (see **ARP**) associates the device IP address with its corresponding physical (MAC) address on the LAN.

P, R

Pass-through Allows control systems to work with the IPL T PC 1 interface, and provides a link between two ports.

Ping A utility and diagnostic tool that tests network connections. It is used to determine if the host has an operating connection and is able to exchange information with another host.

Port number A preassigned address within a server that provides a direct route from the application to the transport layer or from the transport layer to the application of a TCP/IP system. The standard ports used are 23 for Telnet and 80 for Ethernet.

Receptacle A connector on a power supply that is equipped to receive a plug. The IPL T PC 1 has one receptacle into which a device can be plugged, enabling the PC 1 to power the connected device on and off.

S

- SIS** (**Simple Instruction Set**) A set of commands developed by Extron that allow control of the PC1 via the keyboard of a PC with an Ethernet connection. A minimal number of characters are used in these commands and responses.
- SMTP** (**Simple Mail Transfer Protocol**) An Internet standard for e-mail exchange across systems or networks on the Internet
- Standby reference threshold**
The point at which a device starts to operate at standby power
- Static IP**
An IP address that has been specifically (instead of dynamically (see **DHCP**) assigned to a device or system in a network configuration. This type of address requires manual configuration of the actual network device or system and can be changed only manually or by enabling DHCP.
- Subnet**
See **Subnetwork**.
- Subnet address**
The portion of an IP address that is specifically identified by the subnet mask as the subnetwork
- Subnet mask**
A 32-bit address mask used in IP to identify the bits of an IP address that are used for the subnet address. Using a mask, the router does not need to examine all 32 bits, only those selected by the mask.
- Subnetwork**
(or **Subnet**) A network that is part of a larger IP network and is identified by a subnet address. Networks can be segmented into subnetworks to provide a hierarchical, multilevel routing structure.

T

- TCP** (**Transmission Control Protocol**) A connection-oriented protocol defined at the Transport layer of the OSI reference model. It provides reliable delivery of data.
- TCP/IP** (**Transmission Control Protocol/Internet Protocol**) The communication protocol (language) of the Internet. Computers and devices with direct access to the Internet are provided with a copy of the TCP/IP program to allow them to send and receive information in an understandable form.
- Telnet** (**Telecommunication Network**) A utility available on most PCs that allows the computer system to communicate with one of its remote users or clients. A user who wishes to access a remote system initiates a Telnet session, using the address of the remote client. The user may be prompted to provide a user name and password if the client is set up to require them.

U, W

- UID** (**User ID**) An optional user name for which a field is provided on the Enter Password window that opens if a password has been assigned to the PC1
- URL** (**Universal Resource Locator**) An address that lets a resource on the internet be identified, located, and accessed

URL encoding

URL encoding allows you to send information and commands to the unit to change its configuration or provide you with feedback.

Web Server

Resides on the IPL T PC1 interface and provides storage of the default web pages, GlobalViewer, and your custom web pages.

Extron Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

USA, Canada, South America, and Central America:

Extron Electronics
1001 East Ball Road
Anaheim, CA 92805
U.S.A.

Japan:

Extron Electronics, Japan
Kyodo Building, 16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
Japan

Europe, Africa, and the Middle East:

Extron Europe
Hanzeboulevard 10
3825 PH Amersfoort
The Netherlands

China:

Extron China
686 Ronghua Road
Songjiang District
Shanghai 201611
China

Asia:

Extron Asia
135 Joo Seng Road, #04-01
PM Industrial Bldg.
Singapore 368363
Singapore

Middle East:

Extron Middle East
Dubai Airport Free Zone
F12, PO Box 293666
United Arab Emirates, Dubai

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions, or modifications were made to the product that were not authorized by Extron.

NOTE: If a product is defective, please call Extron and ask for an Application Engineer to receive an RA (Return Authorization) number. This will begin the repair process.

USA: (714) 491-1500
Asia: 65.6383.4400

Europe: 31.33.453.4040
Japan: 81.3.3511.7655

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

Extron USA - West Headquarters	Extron USA - East	Extron Europe	Extron Asia	Extron Japan	Extron China	Extron Middle East	Extron Korea	Extron India
+800.633.9876 Inside USA/Canada Only +1.714.491.1500 FAX: +1.714.491.1517	+800.633.9876 Inside USA/Canada Only +1.919.863.1794 FAX: +1.919.863.1797	+800.3987.6673 Inside Europe Only +31.33.453.4040 FAX: +31.33.453.4050	+800.7339.8766 Inside Asia Only +65.6383.4400 FAX: +65.6383.4664	+81.3.3511.7655 FAX: +81.3.3511.7656	+400.883.1568 Inside China Only +86.21.3760.1568 FAX: +86.21.3760.1566	+971.4.2991800 FAX: +971.4.2991880	+82.2.3444.1571 Fax: +82.2.3444.1575	1800.3070.3777 Inside India Only +91-80-3055.3777 Fax: +91 80 3055 3737